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The ILLINOIS Medical Journal

VOL. 82 NO. 5

November, 1942

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Symposium on Problems in War Medicine

The Treatment of Surgical Shock

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OFFICIAL JOURNAL OF THE ILLINOIS STATE MEDICAL SOCIETY

RELIEF FROM PAIN IN ARTHRITIS

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†Archives of Physical Therapy, 21, 12 (Jan.) 1940 *Reg. U. S. Pat. Off.

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The Illinois Medical Journal

November, 1942

VOL. 82, NO. 5

Official Journal of the Illinois State Medical Society

EDITOR — Harold M. Camp. EDITORIAL BOARD — James H. Hutton, Chairman, Frederick H. Falls, Josiah J. Moore, Edwin M. Miller, Chauncey C. Maher, Harry S. Gradle, Philip H. Kreuscher, Harry Culver.

Editorials

PROCUREMENT AND ASSIGNMENT SERVICE

The Second Year?

During the past year the Procurement and Assignment Service for Physicians, Dentists and Veterinarians has aided materially in the procurement of these professional men for the armed forces. The problem has been more complicated naturally in the states with the larger populations such as New York, Pennsylvania, Illinois, California, Massachusetts, Ohio, and several others.

The problem has been more complex in Illinois by virtue of the many types of industries, agricultural areas, the many large hospitals, ordnance plants, mining and oil industries, and the fact that this state has five medical schools, four of which are recognized as Class A schools which must retain many instructors in draft age as essential in their present position.

According to the 1942 A. M. A. Medical Directory, Illinois, with a population of 7,897, 342, has 12,542 physicians residing within the state. Chicago with a population of 3,396,808 has 7,183 physicians, and there are approximately 675 physicians residing in Cook County outside the city of Chicago, making a total for Cook County of more than 7,900 physicians. All of the medical schools and the majority of the large hospitals are located in Cook County.

Each of the large hospitals with many internes, residents, and staff members holding full time or other responsible positions, has requested that many of these men be retained for the successful operation of the institution. Procurement and Assignment has endeavored throughout the country to "streamline" the lists of essential physicians in these many institutions. It seems quite probable that during the war nearly all of them can operate successfully with fewer internes, residents, and essential staff members.

Illinois also has approximately 700 women physicians who are not at this time available for military service, although they are most useful in other essential capacities in the practice of medicine.

There are quite a number of Illinois counties which prior to the war, had merely enough physicians to care for the civilian groups. With the added burdens since Pearl Harbor, resulting from an increase in industrial workers and the creation of many defense zones throughout the state, some of these counties do not have enough physicians to meet the present minimum requirement of one for each 1,500 population. One Illinois county with a population of 24,000 has eight physicians, three of whom are capable of giving limited service only. Consequently the five physically fit physicians must be retained for the present at least, for civilian needs.

Illinois has many small towns with only one physician, and in many instances these men must be declared essential. In some smaller cities with perhaps two or three physicians who in-

dividually should be considered as available for military service, it has been the policy to make the younger man available and the elder ones essential until replacements can be made by relocating a physician who has been disqualified for physical disabilities or by some physician who is above the present draft age and is willing to be relocated.

Our Illinois survey shows that there are approximately 5,638 physicians under the age of 45 in this state, including all men who must be retained for the present as essential. With the large number of men required from Illinois as its quota by the end of 1942 it is quite obvious that the majority of physicians under 45 who are physically fit, will be expected to apply for a commission before the end of the present year.

When the Illinois quota has been met the Procurement and Assignment Service will no doubt be expected to aid in every way possible in the relocating of physicians from communities which have an ample supply to those communities where the supply is definitely inadequate.

With the ever increasing number of essential industries ordnance plants and other essential services in this state, many physicians will be expected to increase their interest in industrial medicine and surgery. Already there are a number of places where physicians who can qualify for this important line of work are needed, and the Procurement and Assignment Service for Illinois will aid in relocating these men after the desired investigation has been made. Preference will be given to those physicians who have been physically disqualified for service and those who are above the draft age.

Physicians who are willing to be relocated or who have had special training in industrial work may fill out the form to be found in the section of this Journal, "Medicine's Role in the War Effort," and send it to the State Chairman for Procurement and Assignment and they will receive additional information promptly.

The list of localities where physicians are

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needed is increasing each week, and efforts have been made to supply these needs as rapidly as possible. In the near future it seems quite probable that more communities needing physicians will be listed and information will be made available to those physicians desiring to serve their country in this important work.

Although an accurate list of physicians who have received commissions for military service is not as yet available, we hope in the near future to publish their names in the Illinois Medical Journal. At this time we know that in most downstate counties there are but few physicians remaining who are available. In at least two counties, McLean and Morgan, the maximum number of physicians who have been declared available have either received their commissions or have been examined and found physically disqualified. This is true in many smaller counties with only a few physicians located therein, and even though the total number now in service is not as great as in other counties, in proportion to the number actually available, the desired number has been commissioned.

It has been stated repeatedly that eight states are expected to furnish approximately 80% of the total number of physicians desired in the services of the government, and this means in each of these states the quota must be high, but it should, and no doubt will be met.

Once more the physicians of Illinois have responded well to the urgent request of the government for physicians to join the armed forces and this likewise is true for the country as a whole. Physicians have always had an important function in all wars in the history of the United States and in this greatest of all wars with approximately 80% of the nations of the world involved, the demand is greater than ever before.

RE-LOCATION OF PHYSICIANS

The recent survey made by the Procurement and Assignment Service has shown that in certain communities in Illinois there are still more physicians than seem necessary for adequate civilian care, while in other sections of the state there is an inadequate supply. The early surveys made to determine the medical man power in Illinois elicited some rather startling information as there were counties with only one physician for 2,500 or 3,000 inhabitants.

With the large number of Illinois physicians entering military service, there are many communities now needing additional physicians. An effort is being made to procure physicians for these areas. Many physicians who have been disqualified for military service have given the assurance that they are willing to be re-located for the duration of the emergency. In a number of instances some of the communities needing physicians have already been supplied.

Illinois, with its many industrial plants now doing war work, has had many physicians in responsible positions to care for essential workers in case of accidents, the development of industrial dermatoses, or other medical conditions found among such workers. It has not been possible to declare all of these men as essential, and consequently many plants are now asking for qualified men to carry on this work.

The Procurement and Assignment Service has listed a number of these plants or industrial organizations desiring additional medical personnel and at this time quite a few of these requests have been cared for.

In a number of Illinois communities there are two or more physicians where one of them could be released to locate in defense areas or in other communities needing physicians. With the ever increasing number of essential plants, ordnance and otherwise, the surrounding areas are increasing their population rapidly, and perhaps under normal conditions there were sufficient physicians to care for all civilian needs, yet with the mushroom growth as a result of unusual activities, additional physicians are now needed.

Efforts have been made throughout the state to ascertain these needs and also to list those physicians willing to do their bit in this present emergency by entering practice in a new community where services are now more in demand than in his present location.

With these facts in mind it is hoped that physicians willing to be relocated will submit the information as soon as possible to Dr. Harold M. Camp, Chairman for Illinois, Procurement and Assignment Service, Monmouth, Il-

linois. The information desired is as follows:*

Name .....Age..Present Location.....
School of Graduation .....Date.....
Do you desire to conduct: (1) General practice..
(2) Specialty .....
Have you had special training or experience in industrial medicine or surgery? .....
Would you be interested in a position with an essential industry or at an ordnance plant?
What is your own present physical condition? (State whether or not you have any physical impairment which might affect your ability to carry on routine work) .....

When this information is received the letter will be answered promptly and following verification of the information submitted by state Committee on Procurement and Assignment, a list of communities needing physicians, or of industrial plants will be referred to the inquirer.

IMPORTANCE OF GENERAL PRACTITIONER

The general practitioner is again taking his rightful place in the practice of medicine — and with a background of study and training that justifies the highest confidence in his ability, John Joseph Nutt, M.D., New York, declares in *Hygeia, The Health Magazine* for November, asserting that "If specialists would accept no patients except those referred by family physicians it would benefit the patient, the family physician and the specialist.

"The patient would, of necessity, have a physician who would be friend and adviser in all things pertaining to health. The prevention of illness has become a large part of the practice of medicine, and surely this is work for the family physician, who knows his patient from top to toe. He also should be the judge of the good or evil treatments, drugs, foods, exercise and climates. . . . No matter where he lives, the most recent advances in science are available to the family doctor through medical journals, circulating medical libraries and medical societies. By consulting him in small matters his patients may often avoid serious consequences. . . . The specialist would not be called on to treat conditions which the family physician can treat exactly as well; he would be consulted only for those conditions which come within his special field. The final result would be the thinning out of the ranks of the specialists — only the really fit surviving — and the return of the family physician to his own. . . ."

*See form on page 340.

DISEASES CAUSED BY A FUNGUS MAY BE AMENABLE TO SULFONAMIDE TREATMENT

Another large and serious group of diseases, the mycoses (diseases caused by a fungus), may be amenable to sulfonamide treatment, Mark Marshall, M.D., and R. Wallace Teed, M.D., Ann Arbor, Mich., say in *The Journal of the American Medical Association* for October 17 in a preliminary report on the recovery of a child from Torula histolytica meningoencephalitis (inflammation of the brain and the membrane enveloping it due to infection with Torula, a fungus or mold belonging to the yeast family). Sulfadiazine was the treatment agent.

"Human infection with the various pathogenic (disease causing) yeasts," they explain, "is not of frequent occurrence. This is particularly true of torulosis, which must be classed as an extremely rare disease. When it is considered that the torulae are found on normal skin, in the human throat and gastrointestinal tract, in milk, on various plants and in the bodies of many insects . . . it is surprising that infection does not occur more often. When it has occurred, however, it has usually been fatal. . . ."

They say that "The absence of torulae in the spinal fluid (of the girl whose case they report) since about February 1 (sulfadiazine treatment was started January 13) along with clinical recovery, leads us to the hope that the child may be completely cured. . . ."

In addition to their own experience the two physicians cite several reports by others of "evidence that mycotic infections as a class may be treated successfully by the sulfonamides. . . . It is therefore evident that another large and serious group of diseases, the mycoses, may be amenable to sulfonamide therapy. One has a distinct feeling that the high mortality of the past will give way to a much better experience in the near future."

Correspondence

OFFICE OF WAR INFORMATION
WAR MANPOWER COMMISSION

The Directing Board of the Procurement and Assignment Service is pleased to announce that 95 percent of the 1942 procurement objective of medical officers for the armed forces has already been met. Toward this total a number of States have supplied more than their share of physicians and only a few States are lagging behind in their quotas. It is from these States that the additional physicians needed during the current year should come.

The recruitment of such a large number of physicians in a few months is a remarkable achievement and another demonstration of the traditional patriotism and unselfishness of the medical profession. In this achievement, and particularly in those of its members who are "in service," the profession can justifiably take pride.

The end, of course, is not yet. Increases in the armed forces will necessitate more medical officers and additional demands will be made upon the profession for medical services in critical war production areas. The Directing Board is convinced, however, that the physicians of this country will respond to future calls for service, whatever they may be, in the same splendid manner with which they have already volunteered for service with the armed forces."

/s/ Frank H. Lahey, M. D.
Harold S. Diehl, M. D.
Harvey B. Stone, M. D.
James E. Paullin, M. D.
C. Willard Camalier, D. D. S.
of the Directing Board

WOMAN'S AUXILIARY NOTES
HENRY COUNTY AUXILIARY

On October 8th the Henry County Auxiliary held its Annual Public Relations Day.

Mrs. C. P. White, president, opened the meeting, introducing Mrs. W. J. Wanninger, State President of the Woman's Auxiliary, Dr. C. P. White, President of the Kewanee Board of Health, Dr. H. L. Pettitt, who said a few words concerning the topic of the day.

The Public Relations Chairman, Mrs. J. T. Boswell then introduced Dr. E. A. Piszczek, president of the Cook County Board of Health and Miss Mary Eagan of the Staff of the National Foundation for Infantile Paralysis who gave a very interesting demonstration of the Sister Kenny treatment for infantile paralysis. The patient was Miss Joan Weeks, a local polio victim who had been treated by the Sister Kenny method.

The program was intensely interesting. There were about 300 guests, including doctors and nurses who seemed spellbound every moment of the demonstration. Henry County Auxiliary feels that its Public Relation Day was a great success and wishes to thank the local and State Boards of Health for their cooperation.

Mrs. D. E. Meier
Sec'y. Pro-tem, Henry Co. Aux.

AMERICAN COLLEGE OF SURGEONS
CANCELS CLINICAL CONGRESS

The annual Clinical Congress of the American College of Surgeons which was scheduled to be held in Cleveland November 17-20, 1942, was cancelled by the Board of Regents of the

College at a meeting held in Chicago, Wednesday morning, October 14. Motivated primarily by patriotism, the Regents were influenced by the present conditions surrounding the general war program which have led to a greater burden on the members of the surgical profession in their local communities as a result of the large proportion of the profession which is serving with the armed forces. The Regents by this action took cognizance of the desire of the profession to do nothing which would interfere with the successful prosecution of the war program such as would be caused by temporary absence of its members from civilian duties during the period of the Congress, embarrassment of the transportation system, and interference with the work of the local profession in Cleveland in preparations and presentations incident to such a meeting.

THEY'D NEVER GET INTO OUR ARMY

To parallel the policy of the War Department not to admit to the army any one unable to pass a rigid physical examination or whose age is over sixty, the following men should have been either at once discharged or not accepted for service by their respective governments.

Moses—Over age, eighty when he took command.
Saul—Insane.
Alexander—Inebriety and temper.
Charlemagne—Over age in last campaign.
Mohammed—Catalepsy.
Djengis Khan—Paranoia.
Richard III—Hunchback.
William of Orange—Chronic asthma, "an asthmatic skeleton."
Oliver Cromwell—Precancer of skin.
Charles II—Tuberculosis.
Frederick the Great—Kyphosis and suicide obsession.
Duke of Wellington—Under weight.
Marshall Blucher—Over age, was 73 at Waterloo.
Julius Caesar—Epilepsy.
Napoleon Bonaparte—Chonic stomach ulcer and under size.
George Washington—No opposing molars.
Columbus—Over age last voyages.
Lord Cleve—Mental instability, suicide complex.
Garabaldi—Over age in Franco-Prussian war.
General Shafter—Over weight and unable to ride a horse.
Ulysses S. Grant—Inebriety, once forced to resign for same.
W. T. Sherman—Nervous, thought insane by some.
Mike Lawler—Over weight, hero of assault at Vicksburg.
Stonewall Jackson—Paralysis of hand from gun shot.
General Hancock—Gun shot of leg, later amputated.
Philip Kearney—Lost arm in Mexican war—in Civil War.
Benjamin Butler—Nearly blind in one eye.
Kaiser William—Birth palsy and atrophy one arm.
Sergt. York—Conscientious objector.
Joseph Wheeler—Over age at Spanish-American war.
Abraham Lincoln—Disproportion of weight and height.
Horatio Nelson—Loss of one arm and an eye.
—R. CADWALLADER in *Journal of the American Medical Association.*

ROWING METHOD OF ARTIFICIAL RESPIRATION

With the patient supine, place yourself at the patient's head. Grasp the patient's arms at the wrists and firmly extend his arms above his head, to raise the chest, keeping them there long enough for air to enter the chest; then rapidly drop the arms back towards patient's chest leaving them there long enough for air to rush out of the chest. Repeat this rowing motion 10 to 12 times per minute.

The arms act as levers, the weight being lifted that of the chest suspended through the pectoralis major and minor and subclavius muscles. The weight of the anterior chest returning to rest causes the expiratory phase. There is no pressure brought to bear upon the body and hence no chance for trauma. The method is adaptable wherever artificial respiration is necessary. It permits convenient observation and care of the patient and results in a maximum amount of aeration. One operator has been able to carry on the rowing method for 2 hours with perfect ease.—*M. C. Rosekrans, M.D., Journal-Lancet, October, 61:421, 1941*

Medical Economics

Edited by R. K. Packard, M.D., Chairman of the Committee on Medical Economics of the Illinois State Medical Society, 826 East 61st Street, Chicago, Illinois.

I am very glad of this opportunity to discuss with you the problem of Medical Economics. I believe it a problem that requires intelligent study and that conclusions should not be drawn by either the profession or the public until facts are available and ascertained, because no problem can be justly or lastingly settled only on the basis of existing facts. First we must admit that a medical economic problem exists and that problem effects 140,000 doctors and 120,000,000 people, approximately, in the United States, living in different territories, under different social and economic conditions and, therefore, requiring different plans of study for various groups and locations.

We are undergoing a world-wide change in our political, social and economic status. Whether these changes are going to result in a further evolution of the political, social and economic rights of men, or in a fall or deterioration, I will not attempt to discuss here, suffice it to say that since the introduction of philosophy, the Hebraic faith, the reformation, the Renaissance, the French Revolution and the founding of the democracy of the United States, that the religion, educational, social, political and economic rights of men have undergone an almost steady process of evolution. There have been some minor detours and perhaps we are only on a detour now and will soon be back on the main highway in all of these developments.

I speak of this because we are now discussing the economic problem of the common man, or so-called "middle class," which constitutes about eighty per cent of our population. Perhaps you, as outstanding men of your community, are not interested in this subject as it actually applies to you, but as Rotarians and as aristocrats in the field of intelligence, and in the field of political and economic life, you must bear the load of giving intelligent thought to this problem that directly effects the common man and so, in the final analysis, effects you.

There is one definite thought I desire to establish in this discussion for your consideration, and that is this: That this problem of medical economics is not an isolated economic problem. It is a part of the whole economic problem and it can only be settled as other economic problems are intelligently settled. It is no more an isolated economic problem than the tariff, or taxes, or the farm problem, or the problem of unemployment, because any problem that effects 120,000,000 people cannot be separated from all the other problems.

We have quite definitely established the political, educational and religious rights of men, but we have not solved or established his economic rights, unless we are prepared to adopt the philosophy that "Might is Right," that the superman is our ultimate goal and that the few enjoy certain privileges over the many. I do not believe that as Americans we are ready to adopt such a program at the present time. We have emancipated man economically from tenancy and feudalism. The question now is, have we enslaved him in a new industrialism and in a new form of tenancy and perhaps in a new form of feudalistic office holding democracy. The ul-

Paper Given By R. K. Packard, M.D. April 28th, 1932, before the Rotary Club of Evanston.

timate goal of a democracy is not the constant increasing of laws, with their added burdens to the people, but rather a constant decrease of their laws with an increase in the education of the people governed.

In the last few years, particularly from '21 to '29, we thought we had perfected nearly a complete and beautiful garden of democracy. All was well; we thought the garden was full of flowers — at least there seemed to be only one weed in it and that weed was the problem of medical economics, or what has been more generally called, "The high cost of medical care," and so menancing did that weed seem to be that magazines, newspapers and periodicals were full of it and the middle class had been completely emancipated from all other evils and reformers, social workers and philanthropists pointed out the evil and said it must be corrected, and finally, as a parting shot, big business men said that unless the medical profession could and would solve this very easy problem, they would have to take it over and organize it on a business basis, a production basis and thus emancipate the common man from his last bondage of slavery. But, while they were talking about this weed, we all woke up to find that this great garden was full of weeds and those weeds were political, social, religious, economic, unemployment, bank failures, defaulted Government, City and Municipal bonds, business failures, noble experiments, reparations, bankrupt cities, gold standard threatened, dividends discontinued, racketeers flourishing and so now the little weed of medical economics has just been crushed out by big, strong, able-bodied weeds; and the garden is so full, so world-wide, that we don't know where to start pruning those weeds.

I want to assure you that I, as a professional man, take no particular joy in these facts, because it has cost me, in investments and in income as it has you, and I am not an exponent of any new social or economic order of things, but rather that we should address ourselves to the task of attempting to solve some of our existing problems and to learn from the book of history and experience; that we attempt to institute some form of preventative medicine in the evils of recurring epidemics of political, social and economic disorders. I do not come to you with suggestions as to a cure. I may have some ideas regardng them, but I do come to stimulate discussion that out of all men's thoughts, some good may accrue. I would be bold enough to attempt some experiments, for unless we are willing to experiment, we can make no great progress. If we will admit that up to the present our therapeutic management has not been quite satisfactory, then there is hope for improvement, but if we are content, then we will have recurring epidemics.

The attempt to settle the medical economic problem of the great middle class by county hospitals, charity hospitals, free clinics and part-pay institutions, is, in the final analysis, not a solving of the economic problem, but rather a distorted and expensive program of shifting this responsibility to those philanthropic individuals and doctors who, in the name of humanity, assume an economic problem themselves, that should be assumed by our whole social and economic structure. In our present crisis a large number of these people have not become objects of medical charity, but of rent, boots and shoes, clothing, food, etc. This last is also given in the name of humanity, but we are all agreed that it is not the proper solution of their present problem. The solution, we further agree, is dependent upon an income sufficient to take care of these obligations. No real American wants to be an object of charity. He desires to pay. He always accepts charity as the last resort. That independent and honest attitude can be changed if you pursue a national propaganda that he is entitled to it, that he has been robbed and such propaganda has been spread in the medical economic literature of the past and today some reformers are attempting to exploit such propaganda in other fields of economic distress; notably the plea to tax the rich, to issue bonds for unemployments, the dole system in England, and the communism of Russia are but an extended form of propaganda; not that they shall receive charity, but that they will divide, not what they have, but what they have not. It is an unfounded and dangerous propaganda applied to any economic picture, and in whatever branch it is fostered, it is but a stepping stone to additional so-called rights and disorders.

I would not infer that we have no economic problems in medicine effecting the middle class. We have just such a problem. The problem is: "How should that problem be solved to the best interests of society as a whole." On second thought it might be — Is our chief economic problem the high cost, or the present cost of medical care, or is it that under our present economic system that there are large numbers needing medical care who are not financially able to obtain it at the present time. Third, under our present system is the distribution of medical care, especially in the charity field, properly distributed?

I want to acquaint you very briefly with some of the facts concerning the above and with the very broad scope of this study. The Committee on the Cost of Medical Care, organized in Washington five years ago, of which Dr. Ray Lyman Wilbur is the Chairman, have just completed a five year study. This study was made under three rather general headings, just are as follows:

1. A preliminary survey showing the incidence of disease and disability requiring medical services, and of generally existing facilities for dealing with them.
2. Study on the cost to the family of medical service, and the return accruing to the physician and other agents furnishing such services.
3. An analysis of specially organized facilities for medical care now serving particular groups of the population.

Some twelve or fifteen subdivisions under each heading were made, going into the exhaustive study of the problems confronting the profession and the public. Just shortly, dealing with the incidence of disease, this study disclosed the fact that in such a preventable disease as malaria, there are 700,000 malaria cases in the United States each year. It was also estimated that there are more than 350,000 children in the United States who have incureable bad conditions that are not being treated and that handicap them both physically and economically. it is further estimated that out of the present number of children attending schools, one million will enter institutions for mental disease during their life-time. It is also estimated that in certain areas of the United States, twenty-five per cent of the people forced by sickness to remain away from their employment do not receive medical care. It is further estimated that only twenty per cent of the people in the United States receive proper dental examinations and treatment.

Further study reveals the fact that people are, on the average, disabled by illness at least once annually, the rate varying as follows by sex and age: Men about once a year, women from once to twice and children over twice per school year. On the basis of the studies made, which were made by the United States Public Health Survey, there would be about 130,000,000 cases of disabling illness in the United States each year and if non-disabling illnesses be added, this figure would be more than doubled. Adult males lose from seven to eight days per year on the average and adult females lose from eight to twelve days. Of 570,000 people in industrial communities, studied by the Metropolitan Life Insurance Company, two per cent were ill on the average of a single day. This indicates an average loss of time for both sexes of nearly seven days per year. In general, the above data would indicate that the 36,000,000 wage earners in the United States lose at least 250,000,000 work days per year and the 24,000,000 school children lose 170,000,000 days per school year. These figures take into account less than one-half of the total population.

I offer these illustrations only to accentuate the broad scope of the question of medical economics at the present time, and to emphasize again that discussions on this subject should be based to some degree upon knowledge of existing facts.

I think from the foregoing you gained some slight idea of the scope of this problem from this particular field of study.

Let us give attention, for just a short time, to the question of the present cost of medicine. If you were to ask me, "Is the present cost of medical care to the middle class too high," I think that in the light of my present knowledge I should answer, "Yes." When we take into consideration that the average income per year in the United States of this class of people is less than $1250.00 a year and the average family consists of more than four, we are convinced not only that the present cost of medical care

is too high, but that the present cost of all the other essentials of life are entirely too high for the present income. Let us take a family of four people, man, wife and two growing children, in the city, and assume an income of $1500.00 a year. This is $250.00 higher than the average in a recent survey of 30,000 employes where $1250.00 a year was the actual income. We will find the following information about our average family:

We are now considering an average family in the normal economic time — not in our present depression. Our four people in this family have a home consisting of at least four rooms, that is, providing we are now speaking in terms of health. Four such rooms in the city would cost a minimum rental of $50.00 per month, which would equal $600.00 a year. Food for four people, at 50c a day a piece, amounts to $750.00 a year. Clothing at $50.00 a piece, amounts to $200.00 a year. This is a total expense for rent, food and clothing of $1530.00 a year, or $30.00 a year above the maximum average income, allowing $250.00 more than the actual survey as shown, with nothing left for amusements, education, church, travel or sickness. It may be argued that they can live much cheaper, but let me reply that health is not just a matter of hospitals, doctors and nurses, it is a problem of home, hygiene, of food, clothing, rest, recreation, education and moral and spiritual development. We should be just as much concerned in the prevention of the development of disease by proper living as we are in attempting to reduce the cost of medical care that might have been prevented.

Relative to the income of professional men: A report of the Committee from Shelby County, Indiana, furnishes some interesting data. Shelby County has been selected as being in general a typical county of mid-western United States. Shelby County, Indiana, has an area of about 400 square miles, a population of about 25,000 and is principally devoted to agriculture, although in the county seat, Shelbyville, which has a population of about 10,500, there is considerable manufacturing of furniture.

There are in Shelby County, 31 physicians, 15 dentists, Christian Science practitioneers, 5 Chiropractors, 1 Optometrist, 1 Osteopath and 1 Chiropodist. Eight are under 50 years of age, twelve are 60 years or better and four graduated during the last 10 years. Seven, or less than one-quarter, had post-graduate courses during the 10 years previous to 1929.

The most common fee for an ordinary office call in Shelbyville is from $1.00 to $2.00. Physicians outside of Shelbyville charge less for office calls, some as little as 50c. The fee for home visits by Shelbyville physicians is $2.00, plus 50c per mile outside of the city, plus 50c for night calls. The usual obstetrical fee in Shelbyville is $25.00; rural physicians charging $15.00. The total net income of thirty physicians in 1928 was $102,000 being less than $3500 a year. Of the 15 dentists in Shelby County, the total net income was $35,000 or a little better than $2000 a year. $47,000 was spent during this year for patent medicines.

The Metropolitan Life Insurance Company, recently conducted a survey on medical costs of 3,281 families, consisting of 17,129 persons, for a period of six months from January 1, 1929 to June 30, 1929. The average number in a family was five plus. The average cost per family was $70.00 for a six month period, or at the rate of $140.00 per year per family or approximately $28.00 per person per year. This cost included medical care, dental care, hospital bills, drug bills, nursing service and added household expenses incurred by sickness. Forty-three per cent of the total was paid to doctors, or an average of about three and one-half cents per day per person for doctor's fees, or $65.00 per family per year. This is probably much less than the average amount spent per person for candies, chewing gum and tobacco. This burden was not evenly distributed, of course, some having no expense at all and some a relatively large expense. Sixty-four per cent of the total cost was expended by one-fifth of the total number of families. This is, naturally, a difficult problem to correct, for no doubt the burden of expense in some families is far beyond their means of meeting such expense. It would seem, off-hand, that such a condition can be equalized only by some form of insurance.

The Committee on the Cost of Medical Care reports that the fees for rural physicians in 17 Massachusetts towns were made, and also the current charges for a round trip to the same points by local garages. In five cases the doc-

tor charged only $2.00 more and in one case $2.00 less. The Committee further reports that especially in rural communities do incomes seem inadequate and this is largely due to the amount of charity work doctors are called upon to perform.

The distribution of medical care is very uneven, both as regards doctors, hospitals and other facilities. As an illustration, a single county in North Carolina, of 18,000 people, has only four doctors and no hospital, while in Chicago there is a doctor for every 500 people and a hospital bed for about every 250 people, with an average of about 4,000 vacant hospital beds daily. It would seem then that those interested in reducing the cost of medical care and desiring to place their money where it will accomplish the greatest amount of good, should seek some intelligent information as to the actual needs by communities for further hospital construction.

The advent of the specialist has added much to the cost of medical care in certain communities and undoubtedly in a large number of cases it is entirely unneeded. A great deal of agitation has been created in the public mind by picking out those rare instances where a doctor has made exorbitant charges for services rendered according to the ability of the individual to pay for such services. The reporting of such instances is indeed an unfortunate thing for the profession. It may, however, serve to correct such practices. Such practices do not have the approval of the medical profession and I think this is generally well understood by the patient. It is my firm conviction that the majority of medical men in this country are making an effort to charge the patient what they think is within the patient's economic status. Much of the high-cost of medical care is, in fact, entirely out of the province of the physician. The expenses of maintaining and operating a hospital cannot be curtailed to a large degree. The cost of construction, the cost of heating, the cost of help and maintaining the organization are the same as in all other lines of business.

In conclusion let us assume that all parties to the controversy have some arguments in their favor. There are few questions of political, social, religious, educational, or economic that are entirely one-sided. So this problem is greater than just a brief editorial of commendation or condemnation can dispose of. It is also too great merely to say that the present status of medical care and medical costs is satisfactory or correct. Even a mere discussion of the cost of medical care, brings up too many problems to settle it out of hand.

For example, medicine and its practice in the preservation of health is not only a professional problem or an individual problem between the physician and his patient, but it is essentially and necessarily a state problem, a social problem, and an economic problem. It is a professional problem because it can be handled only from the scientific end by professional men. It is a state problem because the health of the individual is necessarily a matter of great importance to the state. It is a social problem because it deals with society as a whole. It is an economic problem because the patient needs medical supervision and care that can be obtained only at some cost to some one whether physician, hospital, nurse, family, individual, or the community.

It would seem that the practice of medicine is not essentially unlike other problems of state, government, society and industry. Every business in our land has essentially the same principals to consider. It would seem then that we must accept some of these fundamental facts if we are to arrive at any well balanced conclusion, and any other will add only chaos and discontent to our present condition, both as regards the public and the profession. For the profession to assume that it has no faults or unworthy members would be as erroneous as the church to assume that it can make no progress or that all of its members are Christians, or for the bankers to assume that if left unwatched they would make no errors or have no unscrupulous members, or that institutions of learning need no guidance and that all professors are essentially educators. We admit that the church, banking institutions, educational establishments and industry in general, all have made progress and raised their standards in the last few years. Measuring the progress of these, and then measuring the scientific health advance made in the same period, it is obvious that medicine has more than kept pace with the forward march of events.

Our first concern, then, must be that in all branches of society, business, professional, educational, spiritual, this progress must not be stifled and must be left to the initiative hands of progress. We decry Bolshevism and socialism because the very essence of its creed is to put four-wheel brakes on individual capacity and initiative, and yet this is the serious problem confronting medicine if we are to accept the theory advanced by some that the practice of medicine must be taken out of the hands of professional men and placed on a commercial basis in order to reduce its present cost. When you analyze such a proposal, you discover at once that it applies also to the banker, the manufacturer, the social worker, the philanthropist, in fact everyone who has any service to render to the common man, and derives a living from such service. Is the cost of medical care essentially different from the cost of other essentials of our modern scientific civilization? If the average income earner can afford all the other essentials and some of the luxuries of today, is medical care such a freak of our national development that it needs to be essentially pauperized?

It is always admitted that medical care is never denied anyone who needs it, and that in a very large percentage of cases the question of payment is the last consideration. The profession itself has developed this code of financial ethics. In no other branch of organized society is a commodity sold on so little credit information. The refusal or inability to pay bills means a drastic complete cut-off of service in all other lines, but never where medical care is needed is it refused because of lack of ability of the patient to pay. At least we can assume that this is the recognized custom of the medical profession, and the exceptions are certainly far fewer than are the exceptions in other lines to the recognized ethics of good business. One can say this without decrying big business. Business on large lines is essential; large fortunes are not incompatible with organized society. It is American and sound to believe in individual initiative and the result gained therefrom, and that the largest progress in every line results from such individual initiative. Every act of organized society and government that weakens or defeats individualism and initiative, is a forerunner to socialistic tendency — and I care not whether the government is monarchy or is republic. If its acts are a constant negation of individualism, it is on the road to communism.

It seems then that the essential thing to determine first is the protection of our present standard of medical care of trained professional men, and that our efforts should be directed to a continuation of the production of better doctors, rather than to any change that will result in a decline in the ability of our professional service. It must be admitted by all thoughtful men that any decline in competent professional care will necessarily add to the economic loss as a whole, irrespective of the price paid for such services. The medical profession through its own organization, has steadily raised the quality and training of its members. It has raised the standards of hospitals. It has steadily worked for, and in many instances accomplished, the prevention of disease. It has been the producing factor in better hygiene and in materially lengthening the life of man. If some statistician would figure the economic saving to the country accomplished through the decrease in infant mortality, thru the prevention of such common ailments as diptheria, malaria, thyphoid fever and tuberculosis, and the added longevity of life with its increased earnings, it certainly would compare favorably with the economic saving in all our great industrial organization now based on mass production. The profession has not made these diseases cheaper but they have actually made them preventable. If we are willing to accept, then, the fact that the practice of medicine is both an art and a science, we need not discuss the utter futility of putting medicine on a commercial basis, because it is not a product of mass production; it is an individual art, and when that is taken away the practice of medicine will not only stop progress, but will retrogress.

R. K. PACKARD, M.D.
Chairman, Committee on Medical Economics

A college professor, according to *Underwriter's Review*, lamented thus to his students: "This class reminds me of Kaffee Hag—99 percent of the active element has been removed from the bean." —*Printers' Ink.*

Medicine's Role in the War Effort

SOLDIERS' AND SAILORS' CIVIL RELIEF ACT AMENDMENTS

Prepared by the Bureau of Legal Medicine and Legislation

The Soldiers' and Sailors' Civil Relief Act was approved on Oct. 17, 1940. Its purpose, as indicated in an analysis of it that was published in THE JOURNAL, Jan. 24, 1942, page 306, was to free persons in military service from harassment and injury to their civil rights during their term of military service and thus to enable them to devote their entire energy to the national defense. Experience under the act, however, has disclosed many defects and shortcomings, and numerous bills have been introduced in the Congress dealing with specific problems that have arisen. A subcommittee of the House Committee on Military Affairs was appointed to study the various proposals and as a result of that study legislation was drafted, H. R. 7164, to extend the relief and benefits provided under the original act. This bill has now passed the House and Senate and was approved by the President on October 6.

IN GENERAL

The new law extends benefits to transactions that have occurred since Oct. 17, 1940. It extends benefits to persons who serve with the forces of any nation with which the United States may be allied in the prosecution of the war and who immediately prior to such service were citizens of the United States. Persons who have been ordered to report for induction under the Selective Training and Service Act will be entitled to benefits during the period beginning on the date of receipt of such an order and ending on the date on which such person reports for induction. Any member of the Enlisted Reserve Corps who is ordered to report for military service will be entitled to benefits during the period beginning on the date of receipt of such order and ending on the date on which he reports for such service. The Secretary of War and the Secretary of the Navy are required to make provision in such manner as each may deem appropriate for his respective department, to insure the giving of notice of the benefits accorded by the act to persons in and to persons entering military service.

LEASES

Of particular interest to physicians is the new provision relating to leases. Under the original act no provision was made for the cancellation of leases, nor did the section relating to leases apply to leases on property used for office purposes. The new law applies to any lease covering premises occupied for dwelling, professional, business, agricultural or similar purposes in any case in which (*a*) such lease was executed by or on the behalf of a person who, after the execution of such lease, enters military service and (*b*) the premises so leased have been occupied for such purpose or for a combination of such purposes by such person or by him and his dependents.

Any such lease may be terminated by notice in writing delivered to the lessor (or his grantee) or to the lessor's (or his grantee's) agent by the lessee at any time following the date of the beginning of his period of military service. Delivery of such notice may be accomplished by placing it in an envelope properly stamped and duly addressed to the lessor (or his grantee) or to the lessor's (or his grantee's) agent and de-

positing the notice in the mails. Termination of any such lease providing for monthly payment of rent will not be effective until thirty days after the first date on which the next rental payment is due and payable subsequent to the date when such notice is delivered or mailed. In the case of all other leases, termination will be effected on the last day of the month following the month in which the notice is delivered or mailed, and in such cases any unpaid rental for a period preceding termination shall be proratably computed and any rental paid in advance for a period succeeding termination must be refunded by the lessor (or his assignee).

On application by the lessor to an appropriate court prior to the termination period provided for in the notice, any relief granted by the act will be subject to such modifications or restrictions as, in the opinion of the court, justice and equity may in the circumstances require.

Any person who knowingly seizes, holds or detains the personal effects, clothing, furniture or other property of any person who has lawfully terminated a lease covered by the act or in any manner interferes with the removal of such property from the premises covered by the lease, for the purpose of subjecting or attempting to subject any of the property to a claim for rent accruing subsequent to the date of termination of the lease, or attempts so to do, will be guilty of a misdemeanor and punishable by imprisonment not to exceed one year or by fine not to exceed $1,000 or both.

STORAGE LIENS

A new section clarifies the original act in connection with the protection of persons coming into service from foreclosure of storage liens on household goods stored for the period of military service. No person may exercise any right to foreclose or enforce any lien for storage of household goods, furniture or personal effects of a person in military service during such person's period of service and for three months thereafter except on an order previously granted by a court. In such a proceeding the court may, unless in the opinion of the court the ability of the defendant to pay the storage charges due is not materially affected by reason of his military service, (*a*) stay the proceedings or (*b*) make such other disposition of the case as may be equitable to conserve the interest of all parties.

BENEFITS ACCORDED DEPENDENTS

The dependents of a person in military service will be entitled, on application to a court therefor, to the benefits accorded to persons in military service in connection with rents, instalment contracts, mortgages, liens, assignments and leases, unless in the opinion of the court the ability of such dependents to comply with the terms thereof has not been materially impaired by reason of the military service of the person on whom the applicants are dependent.

INSURANCE PREMIUMS

The benefits of the act in connection with insurance premiums are extended to policies up to $10,000 face value. In order to obtain the benefits, the insured must make written application to the Administrator of Veterans' Affairs. If the insured is outside the continental United States, excluding Alaska and the Panama Canal Zone, the beneficiary may apply for the benefits. The term "policy" is defined to include any contract of life insurance or policy on a life, endowment or term plan, including any benefits in the nature of life insurance arising out of membership in any fraternal or beneficial association. The policy must not provide for the payment of any sum less than the face value thereof or for the payment of an additional amount as premiums if the insured engages in military service. It must not contain any limitation or restriction on coverage relating to engagement in or pursuit of certain types of activities which a person might be required to engage in by virtue of his being in military service. The policy must (1) have been in force on a premium-paying basis at the time of application for benefits and (2) must have been made and a premium paid thereon before Oct. 6, 1942 and not less than thirty days before the date the insured entered into military service. The benefits are not applicable to policies or contracts issued under the War Risk Insurance Act, the World War Veterans Act or the National Service Life Insurance Act of 1940.

The Veterans' Administration is required to give notice to the military and naval authorities of the provisions of the act and must include in such notice an explanation of the provisions for the information of those desiring to make application for the benefits. An insured will have two years after the period of military serv-

ice to repay premiums guaranteed by the government under the act. Interest on such premiums will be payable at the same interest rate as fixed in the policy for policy loans.

MISCELLANEOUS BENEFITS

The section of the original act which authorized in certain circumstances the repossession of automobiles of persons in military service is repealed. A new section prohibits interest at a rate in excess of 6 per cent on obligations of persons in military service incurred prior to his entry therein. A court may grant certain relief with respect to mortgages and taxes on property owned by persons not in military service when the rent for such property is not paid by dependents of persons in military service. The protection provided by the original act in respect of taxes on real property is extended to include taxes (other than income taxes) on personal property. The requirement that such taxes must have fallen due during the period of military service has been eliminated, as has also been the requirement that the person in military service must file an affidavit with the tax collector in order to prevent sale for delinquency without court action. A new section grants to persons in military service relief for a specified period after military service in order to enable them to liquidate their liabilities in an orderly fashion and not be subject to the accrual and payment of these liabilities all at one time. The court may grant an order staying enforcement of obligations either for a period of time equal to the period of military service or, in the case of certain real estate mortgages and contracts, for a period of time equal to the remaining life of the contract plus the period of military service.

J. A. M. A., Oct. 17, 1942

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PLANS TO MEET NEED FOR MEDICAL CARE

Plans for meeting the need for medical care in communities where a shortage of physicians has developed are being made now by the U. S. Public Health Service and the Procurement and Assignment Service of the War Manpower Commission, Paul V. McNutt, chairman of the War Manpower Commission, announced, September 22. He added that the two services are cooperating closely in the planning of this emergency action.

Mr. McNutt explained that in many areas an acute need for medical service has arisen as a result of extraordinary increases in population brought about by expansion of war industries or other war activities. In other areas there is shortage of medical service resulting from the entry of physicians into the armed forces.

Distributed throughout the industrial areas of the country are more than three hundred communities in which the lack of medical care is being felt. The chairman pointed out that among the most critical of these localities are Baltimore County (around Glenn L. Martin Company); Valpariso, Fla.; Huntsville, Ala.; Childersburg, Ala.; LaPorte, Ind.; Charleston, Ind.; Fort Knox, Ky.; Rantoul, Ill.; Texarkana area; Bremerton, Wash.; Pryor-Choteau, Okla.; Vallejo, Calif.; Velasco, Texas; Waynesville, Mo.; Wichita Falls, Texas, and Norfolk, Va.

Mr. McNutt also announced his approval of a statement of policy adopted by the directing board of the Procurement and Assignment Service in which the Procurement and Assignment Service accepts the responsibility of ascertaining the needs of the civilian population for medical service and providing the medical personnel to meet them.

The principles set forth in this policy statement, Mr. McNutt said, were developed in cooperation with the federal officials concerned and have the approval of the Surgeon General of the United States Public Health Service. The statement has been approved by the boards of trustees of the American Medical Association, the American Dental Association and the war service committees of the two associations, and the executive committee representing the State and Territorial Health Officers Association.

Following are the principles recommended by the directing board of the Procurement and Assignment Service for meeting the emergency needs:

1. That it is a responsibility of the Procurement and Assignment Service to ascertain the needs of the civilian population — nonmilitary — for medical service.

2. That it is the responsibility of the Procure-

ment and Assignment Service to aid in providing the medical personnel to meet these needs.

3. That, as now constituted, the Procurement and Assignment Service is not in a position to deal with the financial and administrative problems involved in the provision of medical care.

4. That as far as possible these problems should be met at the state level in view of the many different types of problems and needs and the relation of these and their solution to local situations.

5. That a survey of these needs should be made by the existing committees of the Procurement and Assignment Service with the aid of such technical assistance as may be necessary. It is especially desirable that in determining these needs the state procurement and assignment committee seek the cooperation of the state health department, of the state medical society and of the state dental society, of industry, of organized labor and of other agencies, such as the state defense council, which should be able to make significant contributions to the solution of this problem.

6. That whenever possible the civilian needs as determined by these committees should be met through local arrangements, resources and agencies. In case assistance is needed for the organization, administration or financing of necessary medical or dental services in these areas, the responsibility should devolve on an agency which should include representatives of the state health department, the state medical society and the state dental society, with the cooperation and support — financial and technical — of the appropriate federal agencies, the administration of funds being delegated to the appropriate state agency.

7. That, since these problems have been occasioned by the war and in many instances transcend state lines, the federal government has a definite responsibility to cooperate with the states in meeting these needs by the provision, when necessary, of financial and technical assistance.

8. That the needs for medical care in certain areas are so acute and the pressure from various sources so great that it is imperative to have prompt action for implementation of this program. It appears to the directing board that the

PHYSICIANS WILLING TO CONSIDER RELOCATION

With the large number of Illinois physicians entering military service, there are some communities within the state where physicians are needed now. Likewise there are a number of industrial and ordnance plants which are asking for personnel in their medical divisions.

There are also a number of ethical clinical groups needing physicians in several departments, or for general service which have requested assistance in procuring the type of men desired. This information is filed in the office of the state chairman for the Procurement and Assignment Service.

Some very good appointments are available especially for physicians who have been disqualified for military service, but who can do a considerable amount of work, or for those physicians in good physical condition who are above the present draft age. Any physician desiring the information which is available, will be able to procure same by filling out the attached form, and mailing it to Dr. Harold M. Camp, State Chairman, Procurement and Assignment Service, Monmouth, Illinois.

NAME ..... AGE ..... PRESENT LOCATION .....

SCHOOL OF GRADUATION ..... DATE .....

DO YOU DESIRE TO CONDUCT: (1) General practice .....

(2) Specialty .....

Have you had special training or experience in industrial medicine or surgery? .....

....

Would you be interested in a position with an essential industry or at an ordnance plant? .....

What is your own present physical condition? (State whether or not you have any physical impairment which might affect your ability to carry on routine work) .....

responsibility for the initiation of such action rests with the War Manpower Commission.

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RED CROSS BLOOD DONOR SERVICE

The American Red Cross Blood Donor Service was recently selected to receive the Army-Navy Production Award for its work in procuring blood for dried plasma for the armed forces. The eighteen blood donor centers located throughout the country will therefore have the right to fly the Army-Navy Production Award Pennant, and all employees will be privileged to wear special Army-Navy E pins. In February 1941 the Surgeon Generals of the Army and Navy requested the American Red Cross to set up a center to procure blood for 15,000 units of dried plasma for emergency transfusions. Three months later the amount requested was increased to 215,000 units and following the attack on Pearl Harbor the request was made for 165,000 additional units of dried plasma, making a total of 380,000 units for delivery by July 1, and this amount was exceeded three weeks ahead of schedule. The American Red Cross will continue to expand its blood collecting facilities as rapidly as laboratory arrangements can be made to process the blood into dried plasma and into serum albumin, a more recently developed blood substitute.

CORRECTION — PUBLIC HEALTH NURSES NEEDED

The U. S. Civil Service Commission recently issued a call to public health nurses. The commission desires now to correct the statement made regarding the omission of high school education as a requirement for public health nurse positions. This statement was made in error by the commission. The educational requirements for public health nurse cannot be obtained without completion of a high school education.

The requirements are completion, subsequent to Jan. 1, 1920, of a full course in a recognized school of nursing including two years in a general hospital having a daily average of 50 bed patients or more, registration as a graduate nurse and completion of one year of study in public health nursing at a college giving a course of study approved by the National Organization for Public Health Nursing. One year public health nursing experience also is necessary. The public health nurse positions pay $2,000 a year.

Other nursing opportunities open in the federal service are junior public health nurse, $1,800 a year; graduate nurse, $1,800 a year; junior graduate nurse, $1,620; graduate nurse for the Panama Canal service, $168.75 a month; nursing education consultant, $2,600 to $4,600 a year, and public health nursing consultant, $2,600 to $5,600 a year.

Except for Panama Canal service there are no age limits for any of these positions. Applications will be accepted at the commission's office in Washington, D. C., until the needs of the service have been met.

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DR. BAEHR VISITS ENGLAND

Dr. George Baehr, chief medical officer, Office of Civilian Defense, Washington, D. C., has gone to England to study Britain's emergency medical service and to confer with medical leaders. Dr. Baehr will be abroad for several weeks.

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ILLINOIS HOSPITAL UNIT GOES ON ACTIVE DUTY

The University of Illinois Hospital Unit, the twenty-seventh evacuation hospital, left for active duty in October. Dr. Charles B. Puestow, associate professor of surgery at the University of Illinois College of Medicine, Chicago, and now commissioned lieutenant colonel, for some weeks has been at the Walter Reed General Hospital in Washington for a period of training. Lieutenant Colonel Puestow, who organized the unit, will be director of this 750 bed mobile hospital. The other medical members of the personnel are largely University of Illinois alumni. At a party in honor of the unit at the Illini Union Building on the Chicago Campus, September 22, the speakers were Governor Green, Mayor Kelly of Chicago, President Willard and the board of trustees of the University of Illinois, Admiral John Downes, commandant of the ninth naval district, Major Gen. H. S. Aurand, commanding general of the sixth service command, Col. Chester L. Fordney of the U. S. Marines, Col. J. E. Bastian, surgeon of the sixth service command and other officers. Dr. George W. Post Sr., president of the medical alumni of the university, was on the executive committee in charge of the arrangements. Follow-

ing is a list of the personnel of the twenty-seventh evacuation hospital unit:

Lieut. Charles Allison, Kankakee, Ill.
Capt. Robert E. Bedard, Kankakee, Ill.
Capt. Robert P. Blatchley, D. C., Cook County Hospital.
Capt. Daniel E. Bowers, Peoria, Ill.
Capt. Lawrence Breslow, Chicago.
Lieut. John J. Brosnan, Chicago.
Lieut. Joseph H. Buckley, Chicago.
Capt. George V. Byfield, Chicago.
Capt. Clifford L. Carter, Ottawa, Ill.
Lieut. James H. Cross, Chicago.
Dr. Roland Cross Jr., New York (formerly of Chicago).
Dr. Howard I. Down, Sioux City, Iowa.
Capt. Arthur H. Ericson, M. A. C., Chicago.
Dr. Edward G. Evans, Aurora, Ill.
Lieut. Charles E. Fildes, Chicago.
Major William J. Gillesby, Effingham, Ill.
Lieut. Glen Goodwine, M. A. C., Chicago.
Lieut. Harold A. Grimm, Chicago.
Capt. John O. Hanson, Chicago.
Lieut. Noel J. Hershey, Niles, Mich.
Capt. Herman Joffe, Chicago.
Dr. Robert M. Jones, Chicago.
Lieut. Karlton H. Kemp, Texarakana, Texas.
Capt. John P. Klein, Reed City, Mich.
Capt. William P. Kleitsch, Chicago.
Lieut. Sidney Lane, Berrien Center, Mich.
Capt. James W. Lewis, Evanston, Ill.
Capt. Edward S. Lundgren, Chicago.
Capt. John H. Mathis, Atlantic City, N. J.
Major Oscar E. Nadeau, Chicago.
Capt. Edward L. Schrey, Chicago.
Major Archibald Spelman, Smithville, Mo.
Capt. Thomas A. Weaver Jr., Cincinnati.
Lieut. Edward F. Webb, Chicago.
Lieut. John C. Whittier, New York.

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ARMY TO TRAIN PSYCHOLOGISTS TO LIFT ILLITERATE SELECTEES

A training course for civilian psychologists who are to test illiterate Selective Service men will be instituted soon under direction of the adjutant general at Fort Leavenworth, Kansas, the War Department announced, September 24. Those successfully completing the course will serve in the army specialist corps, in which some of the prospective students already have been commissioned. The demand for psychologists is a result of a recently adopted army policy of taking illiterate persons into service when it is felt that the degree of illiteracy is no bar to successful completion of military training. The course offered at Fort Leavenworth in October will be attended by more than a hundred and fifty psychologists, who will receive general indoctrination in army methods and specific instruction in the examining devices used at induction stations. The psychologists will be assigned to induction stations throughout the country. To determine whether a selectee is acceptable, a three part screening process will be used. First an oral interview will be given in which men are passed immediately on the basis of their obvious qualifications or held for further examination. If the man fails to pass the initial interview, he receives a nonlanguage, visual classification, test which is conducted as far as possible in pantomime in order that the test may be fair to men who may be literate in their own language but unable to speak or write English. If on the basis of the first two tests the examining psychologist finds that the registrant is of marginal ability, at his option he may give a third screening, designed to determine whether the selectee can follow oral orders, all simple, but of varying nature. Illiterates who prove acceptable for service will be assigned to units for which their occupational experience best fits them and will have an opportunity to attend night schools or such other extracurricular classes as may be practicable.

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ALLOCATION OF NARCOTIC DRUGS

Under a directive issued by the chairman of the War Production Board, October 6, the U. S. Bureau of Narcotics is authorized to allocate narcotic drugs in such manner and to such extent as it may deem necessary or appropriate in the public interest and to promote the national defense.[1] The bureau may regulate or prohibit the production, manufacture, sale, transfer or other disposition of narcotic drugs by any person who has acted in violation of any regulation or order prescribed by it pursuant to the directive and may require such reports and the keeping of such records and may make such investigation as it deems necessary or appropri-

1. Federal Register, Oct. 7, 1942, p. 7938.

ate. The chairman of the War Production Board may from time to time delegate to the bureau such additional powers with respect to the exercise of control over narcotic drugs or may amend or revoke the delegation contained in the directive in such manner and to such extent as he may determine to be necessary or appropriate. No preference rating heretofore or hereafter assigned, applied or extended will have any binding effect with respect to any transaction in narcotic drugs unless the Bureau of Narcotics expressly so orders. For the purpose of the directive, the term "narcotic drugs" is defined to mean opium, coca leaves, cocaine or any salt, derivative or preparation of opium, coca leaves or cocaine.

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DENTISTS IN TRAINING TO AID PHYSICIANS

Sixteen dentists in Flint, Mich., are taking special training in Flint hospitals at the invitation of the Genesee County Medical Society to enable them to assist physicians by performing certain medical procedures and thus to relieve the shortage of physicians created by the demands of military service. The training will qualify the dentists in obtaining blood for examinations, intravenous feeding, intramuscular injections, intravenous injections and obtaining blood from donors for blood banks. Several of the number are already qualified in some of these fields and are assisting in clinics and with Selective Service examining boards.

Colorado dentists are engaged in a similar program under the auspices of the Colorado State Dental Association and the Committee on Emergency Medical Service of the State Defense Council. The plan was initiated by the presidents of the State Dental Association and of the Denver Dental Association, in cooperation with the board of trustees of the Colorado State Medical Society. Facilities of the University of Colorado School of Medicine and the Colorado General Hospital have been made available for the instruction. A class of seventy dentists has finished a course of lectures on anesthesia, and small groups are now assigned to the hospital for practical training. It is planned that the dentists shall return to the hospital at intervals for review after their training is completed. Preliminary lectures on shock and treatment of open wounds have also been presented.

Classes are being organized in maxillofacial surgery, oral surgery, serology, taking of blood for transfusion, and in the treatment of shock, hemorrhage and open wounds.

Dr. Ralph Christy, president of the state dental association, in a report to the Dental Preparedness Committee of the American Dental Association, emphasized the desire of dentists to assist the medical profession in an emergency, the willingness of physicians to give the necessary instruction and the importance of practical training in hospitals in addition to didactic lectures.

The Medical Division of the Office of Civilian Defense in April issued a statement recommending that dentists qualify themselves in first aid in order that they may act as instructors and as members of emergency medical field units in casualty stations and first aid posts in the event of air raids, in the administration of anesthesia, and in the care of injuries of the face and jaws.

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The great fallacy of the age is the vulgar fallacy that knowledge is power. But not all knowledge is power. Only the knowledge you have faith and aim to use is power; and the instinct of each mind is, I believe, a far better judge of how much knowledge it has faith and aim to use than we commonly suppose.—*Walter Moxon.*

LOWEST DEATH RATE

Lowest death rate in the history of the United States death registration states was recorded in 1941, according to the U. S. Census Bureau. Provisional mortality statistics for that year, just tabulated, show a crude death rate of 10.5 per 1,000 population. The 1940 rate was 10.8, a slight increase over the previous low level of 10.6 reached in 1938 and 1939. There were 21,362 fewer deaths in 1941 than in 1940. Most of the decrease occurred in the rural areas. The greatest decreases were in the District of Columbia, Idaho and Vermont. The greatest increases in death rates for individual states were in Arizona and Virginia. The total number of deaths for the entire nation for 1941 was 1,395,507.—*Science, July* 17, 1942.

★ **BUY WAR BONDS** ★

Original Articles

Symposium on Problems in War Medicine

VENEREAL DISEASE CONTROL SINCE THE ONSET OF WORLD WAR II

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In the last few months the people in the United States have changed their ideas about wealth. They used to think of America as being materially richer than any country in the world. It has more oil, more coal, more steel, more copper; it has wider and longer rivers, larger forests, richer ore deposits, greater lakes; it has taller buildings, more automobiles, more bathtubs.

Today, this material estimation of wealth does not seem so important. We are beginning to understand that the steel and the coal and the copper, the automobiles and the plumbing, the forests and the rivers, are only a small part of the riches of the United States. We have begun to understand that without manpower all this material has neither form nor significance. The real wealth of the United States is its 130,000,000 people. Kept strong and healthy, and given capable leaders, those 130,000,000 people can forge American materials into tangible wealth in almost any quantity.

Read before the Illinois State Medical Society, Springfield, May 20, 1942. Joint Session of Sections on Medicine, Surgery, Public Health and Hygiene, Pediatrics, and Obstetrics and Gynecology.

The present war has made us acutely conscious of the value of manpower. Men and their skills are needed everywhere. Every locality is contributing men to the war effort. Some are soldiers, trained in the modern technic of making war; others are civilians, employed in war industries, building the tanks and the guns and the planes and the ships with which we wage war. Still others are raising the crops and processing the food which feeds the men of the great war machine.

Warfare in our time is ruthlessly efficient in the armies of our foes. We must surpass this efficiency or become their victims. Only *well* men are valuable in the kind of efficiency we must achieve. *Sick* men have value only insofar as they may one day be *well* men. It is, therefore, a matter of grave concern to all of us that in the American armed forces, venereal disease keeps nearly four of every thousand fighting men out of action all the time. It has been reported that our Army may reach seven million men. If venereal disease continues to operate in an Army of that size at the present rate, 26,000 men will be kept out of action every day. A year has 365 work-days for an Army at war; there are no weekends and no holidays. Thus 26,000 inactive men in an Army every day for a year would result in the loss of about 9½ million soldier-days. And soldier-days, not dollars, may mean liberty in 1942.

Sick men win no battles. They consume food, they wear clothes, they require treatment, and they tie up equipment. But because we are accustomed to think in terms of dollars, let's look at the dollar cost of sick men in the Army. According to figures recently published, it costs about $210 to outfit the average soldier. It also costs about 40c a day to feed him. That means that food and equipment for the average soldier amounts to nearly $360 a year. Twenty-six thousand soldiers with gonorrhea or syphilis would tie up about $5,360,000 worth of equipment and would consume about $3,900,000 worth of food. Add another $3,000,000 for treatment and hospitalization and the total is more than 12 million dollars.

About 3,000 men were lost during the bombing at Pearl Harbor. We consider that, and justly, a major calamity. But how about the men who were "knocked out" before even getting to Pearl Harbor — before, indeed, ever getting into a uniform? How about the 135,000 men out of the first three million selectees who have been found to have syphilis? They, too, represent a major calamity. Pearl Harbor was the second important American action in World War II. The first was fought on a scattered front in every locality in the United States. The enemy was venereal disease. And in that engagement we lost 135,000 men.

But we must qualify the use of the word, "lost". Men killed in battle are totally lost. The 135,000 selectees who were found to have syphilis can be reclaimed. Until they are they remain mobile sources of infection to others. They are a handicap and a threat to the war effort so long as they are allowed to go untreated.

Health departments have recorded that only about half of the selectees found to have syphilis out of the first million men examined are now under treatment. All the rest are at large unless they have been treated by private physicians and this fact not reported to the Selective Service System. Moreover, many of the contacts who infected these men are still at large, and are doubtless infecting others.

You in Illinois have some satisfaction in the fact that your State rates fairly low in a tabulation of the prevalence of syphilis among selectees. Of the first million men examined, the Illinois rate for syphilis was 22.7 per thousand as compared with 45.2 for the entire country. This speaks well for Illinois when we consider that it is one of the most populous States in the Union and that it has the second largest city. It should be noted, too, that Chicago's rate of 21.5 per thousand is lower than that of any other American city with a population over a million people. This is ample testimony for the effectiveness of the venereal disease control program which has been carried on in Chicago in recent years and for the wholehearted participation of physicians throughout the State. Less satisfaction is derived from the fact that in Illinois there are 78 counties, representing more than one-fourth of the total population of the State, that have no venereal disease clinic facilities. While Illinois has been doing well it still has a big job to do.

According to a Census Bureau estimate, there are now over 16,000,000 men in the United States between the ages of 21 and 35. If we apply the established rate for the United States of 45.2 cases of syphilis per thousand men to 16,000,000, we find that 700,000 men of active military age in this country now show evidence of syphilis. This is almost 200,000 more men than were in the entire United States Army before mobilization. It is about 4½ percent of our total manpower between the ages of 21 and 35. Everyone of those men is now unacceptable for military service until he has been adequately treated.

Such waste of manpower is unnecessary. We have at our command the technical knowledge to render most of these men fit for duty. The United Nations must match the axis gun for gun, plane for plane, ship for ship, and *man* for *man* in a very short time to win the war. Manpower is our most precious national resource.

Good personnel, perhaps the most vital part of what we call an "adequate program," is built around a good doctor; not any doctor — much less one who roots his way to a place at the public trough because he hasn't what it takes to make a place for himself anywhere else. It means a doctor thoroughly trained in the special skills of venereal disease treatment. If he is a zealot, all the better. This still is an evangelical job.

Nurses must be specially trained, as must social workers who find and bring under treatment both the source of the infection and those to whom it has been transmitted by the patient. There must be competent clerks to keep case records as carefully as the record of scientific experiments is kept in the laboratory. These are human documents. Upon their accuracy depends life and death, whether the patient is cured, self-sufficient, able to carry his own load — or whether he becomes a human derelict, a charge on the community.

Reliable laboratory service, drugs, modern scientific equipment, skilled personnel — no matter how abundantly all are provided — still lack effectiveness if housed in a hovel. Clinic quarters must be commodious enough to accommodate comfortably all patients who come for treatment, must afford space for personnel to administer medical care with reasonable consideration for privacy, and must be as clean as the private rooms of a good hospital. They need not be elegant. They must be decent.

The clinic which returns dividends on the public dollar by doing well the work for which it is designed must be located where people can get to it easily. It must offer treatment at hours when patients can come. Though a few of its patients be the scum of the earth, results will be better if they are treated with friendly courtesy. If venereal disease affected only the scum of the earth, it would not be a public health problem. It does strike many decent, frightened, unfortunate folk who have no chance for cure except at the public clinic. They must be found and given sufficient treatment. There is no hope of giving sufficient treatment unless the clinic is operated in the spirit of compassion for the relief of human suffering.

We have names and addresses of infected selectees, and, in some cases, names and addresses of those who infected them. We are getting more and more. They must be placed under treatment while the names and the addresses still go together. Sluggishness on our part now will cancel the greatest contribution to venereal disease control in our time.

Need number one, therefore, is to get infected selectees and those who infected them under treatment. If your local board of health already is working on the problem, get in touch with them. They will appreciate your offer of assistance and will doubtless give you an assignment. If they are not active, prod them. In this time of crisis, the American people must outlaw the phrase, "business as usual." None of us — health officers, nurses, or practicing physicians — has a right to expect to do "business as usual" anymore than the men who made and sold automobiles or the men now in the armed forces.

I have long been an advocate of blood testing as the best device for finding persons infected with venereal disease. But as I have said, serologic tests of selectees have already found more infected persons than we have clinic facilities to treat adequately. Routine blood tests to only three groups: expectant mothers, applicants for marriage licenses, and selectees, are now being given at the rate of 4,400,000 annually and are turning up patients at a rate of over 126,000 a year. Blood tests to all groups for all purposes are being given at a rate of about 17,000,000 a year. The emergency problem is, therefore, not so much one of expanding the facilities for finding cases as taking care of the cases the machinery already at work is turning up.

Please do not misunderstand me. I still think that all persons who come to hospitals or to private physicians for treatment should be urged to take blood tests. We must go on finding cases. And the blood test not only finds cases, but better than all the pamphlets ever printed it educates. It shows people a simple way of knowing for sure. Having had a personal demonstration of the simplicity of the blood test, those who have had one are not likely to hesitate to ask for another. But the weakness in the venereal disease control program at present lies in holding patients under treatment rather than finding them.

Treatment of gonorrhea has been greatly facilitated by the amazingly successful use of the sulfonamide drugs. It is rapid, simple and effective. About 90 percent of all cases can be rendered asymptomatic and bacteriologically negative within two weeks. No special facilities are required and the patient need not be quarantined.

But with the treatment of syphilis the problem is different. There may be a time when massive dose therapy will simplify it to a five-day sojourn in a hospital. Indeed the results of massive dose treatment in the Cook County Hospital in Chicago and in other hospitals throughout the country are very encouraging. But the time for universal use of massive dose therapy is not yet, and we must be prepared to do something now.

Treatment of syphilis cracks up all too frequently on the rock of case-holding. Infected patients are found and they go to a private physician or a clinic. In four cases out of five they never take as many as 20 injections of an arsenical drug and 20 of bismuth within an eighteen month period. Sometimes they discontinue treatment because they can't afford it; sometimes because it's inconvenient; sometimes because it's unpleasant. But, syphilis is an infectious disease. It destroys manpower, and it is spread from person to person by direct contact. Those responsible for the public health must develop a case-holding technic which will keep a maximum number of syphilitic patients under treatment through a reasonable number of doses.

Case-holding is, in part, a process of education. The practicing physician who would hold a case through an 18-month, "twenty-twenty treatment" course must have impressed his patient with the absolute necessity of continuing, and must have made the continuation of that treatment as convenient to the patient as possible. Fear will not hold him; bluffing only works if he is stupid; and force could not always be used even if it were desirable. Therefore, the only device left to the physician, and the one most compatible with the practices of democratic government, is that of the teacher. The patient's confidence must be won and his cooperation assured. He must be taught as well as treated.

It is not urged that physicians treat privately additional patients free of charge. Every doctor in the country already carries his share and more of charity patients. But it is urged that patients who cannot pay be referred to public clinics where they can be treated free of charge. If there are no clinic facilities available, the practicing physician should be the first to insist on the establishment of such facilities.

In addition to holding the pay patients by educating them to their responsibilities and urging the institution of clinic facilities for those who cannot pay, the physician should cooperate with his State and local health officers by reporting his own cases. These things will help to conserve precious manpower.

Manpower is the true source of America's wealth. And it is always in manpower that we pay the cost of our folly. We pay the price of crime in manpower because we are largely ignorant of the cause of crime and of how to treat the criminal. We pay the price of war in manpower because statesmanship has not yet discovered how to control war. We pay the price of disease in manpower because too often we are ignorant of its cause and cure.

But we are not ignorant of the cause and cure of venereal disease. We have the means at our disposal to control it. We have the knowledge; we have the medicine; we have the money to provide the facilities; and we have been commissioned by the American people to use this knowledge, medicine and money. Every doctor, nurse and health officer in America can contribute to today's challenge to control venereal disease.

AN ANALYSIS OF THE VISION OF 200 CONSECUTIVE SELECTEES AS SEEN BY AN ADVISORY BOARD OCULIST

G. HENRY MUNDT, M. D.
CHICAGO

During and following World War 1 there was much talk about the poor physical condition of the youth of this country. Various methods of improving our crop of men were suggested. Among the remedies frequently mentioned was a more universal distribution of medical service. The writer is one of those who has for a long time felt that there was no method of medical distribution that would fit into a democracy by which any considerable number of

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individuals would be materially improved physically. Please understand that after many generations the physical well being may be raised, however this improvement will come as a result of education which will cause parents and the children and youth to demand for their progeny and to a degree for themselves a greater abundance of Brain and Brawn. And the Brain must be a factor if the desired physical standards are to be reached because only by an improved intelligence level can the proportion of individuals in the top disqualifying brackets (as disclosed by selective service examinations) be gradually reduced.

It has been well said that "You can lead a horse to water, but you can't make him drink." By the same token unless an individual is sufficiently well informed (educated) as well as interested he will not make the effort necessary to improve his physical condition or the physical well being of his progeny. This goal requires a true appreciation of the problems as well as the target at which he must aim.

For many years the dental profession have made great effort to enlighten the public on the desirability of improving the teeth and this has been fortified by commercial programs on the radio advertising dental cleansing agents, during nearly all of which the recommendation is made to see the dentist. Notwithstanding more than thirty years of intensified propaganda tooth defects lead the number of disqualifying factors in this selective service effort as it did in the draft of World War 1. I submit that only by a long term continuous effort (extending over several or many generations) can we materially improve the health of our youth. And I hasten to say that there is no evidence available that our youth is not the equal or the superior of the youth of any other country, and in some nations there has been in vogue for years a system of medical service which should have touched every level of the citizenry.

We have all heard over the radio reference to the superior physical condition of the youth of Germany but I think that I can say without fear of successful contradiction that the youth of that nation owes it superior physical preparedness (if it actually is superior) to the system of out of door activity which has for generations been fostered in that country, probably for the purpose of producing a continuous crop of prime fighting men rather than for the purpose which, I would advocate, that of improving youth so that they may have a more sound peace time life.

The selectees here reported upon were referred by their local boards to an Advisory Board for examination as to their vision. It should be born in mind that these men were only those about whom there was a question of visual fitness for induction. The title of this paper should be read in its entirety so that no one may think that 200 selectees picked at random could be as deficient visually as were this two hundred.

The reason for this study was to satisfy the curiosity of the writer as to whether any system of national, state or local medical practice might have materially improved the vision of the youth of this country.

The writer was designated the oculist of an Advisory Board in the latter part of 1940. This had no more than occurred than the deluge of selectees started. A few local boards not understanding the relative function of the local and advisory boards referred great groups of men about whom there was no question of visual fitness. Some boards referred men who had inquired about visual requirements and were weeks or months away from induction and were sent only to satisfy the mind or curiosity of the selectee as to how he would fit into the program. Because of the confusion early in the functioning of the Advisory Boards, I selected the last two hundred men examined by me. Some of these were seen after the function of the board had been abrogated.

This was an opportunity for a study which would have been of the highest interest as well as of considerable value, but the lack of time precluded the study in detail of these men. I took seriously the requirement of the vision being correctable to 20/40 and did not confuse it with corrected to 20/40 which some of the local boards still had great difficulty in differentiating. Where there was a question of correctability which could only be arrived at by cycloplegic refraction this was done. While a more detailed study of some of the men would have been of great interest, the time element

precluded the possibility of doing more than was done because the prime reason for seeing the men was to report back to the local boards, and I say with considerable satisfaction that every report was in the mail the same day that the examination was completed. The work was done in the private office of the writer along with his private practice and by the time that the group which is being reported upon was seen the selectees had been reduced to a trickle. The men reported upon were seen from September 9, 1941 to February 11, 1942, distributed as follows:

September 9-30, 1941	44
October, 1941	43
November, 1941	58
December, 1941	32
January, 1942	20
February, 1942	3
Total	200

Because of the exigency of the examination the minimum amount of work was done which would enable the proper classification of the examinee.

For gross classification there were three main divisions into which the men had to be placed:

1A—Minimum vision of 20/100 in each eye improvable to 20/40 in each eye.

1B—Minimum vision of 20/400 in each eye improvable to 20/40 in one eye.

4 —Those who did not reach the above two standards.

On this classification the result of the survey was as follows:

20/100 binocularly to 20/40 binocularly	53	or	26.5%
20/400 binocularly to 20/40 in one eye	135	or	67.5%
Less than the above	12	or	6 %
Total	200	or	100 %

There were doubtless many men who were visually unfit who were not sent by their local boards.

Among this two hundred not one malingerer was found. There were eighteen cases of strabismus (convergent 14, divergent 3, vertical 1). There was one marked nystagmus.

Six men had anterior segment lesions of sufficient import to place them in Class 1B or 4. Only four or 2% of the total had sustained trauma sufficient to place them in 1B or 4, and only one of these or one half of one percent of the total had less than 20/200 vision. This percentage would undoubtedly be higher in the rank and file of selectees. Parenthetically I should like to say that there was only one air gun injury among the group disqualified for 1A classification so that the effort to prevent this type of injury must have born fruit.

There were ten gross unilateral fundus lesions and one gross bilateral fundus lesion observed. Undoubtedly more would have been found if it had been necessary to look for them to arrive at a classification.

Of the two hundred men where refraction was done or checked, there were forty-one hypermetropic or had hypermetropic astigmatism. Of these fourteen had high hypermetropic astigmatism, four had high hypermetropia. Eight had vision of 20/200 — 20/100 improvable to 20/40 or better, 15 had vision of 20/100 or better improvable to 20/40 or better.

The very distressing thing to the writer was the very high proportion of myopic individuals in this group. The writer is one of those who feels certain that there is something to be done about myopia other than prescribing a pair of lenses and allowing the patient to go unobserved until he again finds that he must have an improvement in vision. The proportion of these young men who had had any advice on the use of the eyes was very low indeed and some of them were quite perturbed by the necessity of frequently procuring new (stronger) lenses.

There were of this group of 200 young men 97 whose vision could be improved to 20/40 or better in each eye not withstanding their being myopic. There were others who were myopic whose vision could not be improved to 20/40 in each eye but the number was not arrived at.

From this observation it can readily be seen that myopia is the visual problem in more than one-half of the group here reported upon.

In the light of the proportion of selectees with myopia I suspect that the next step of importance for the eye physician in his contact with the general public (and I should like

to see medicine as a whole help) is to inform the people upon the seriousness of high myopia which is to say the least very inconvenient. With the experience at the United States Naval Academy in mind that men who are emetropic or slightly myopic at entrance are very apt to end their training sufficiently myopic to prevent their functioning as line officers, and that a residue of hypermetropia seems to prevent this tragedy after four years of strenuous eye use, even though a high standard of physical training is entered into we should be in good position to help to guide the public in a visual way.

SUMMARY

1. No form of medical practice would have been more successful in elevating the standard of visual efficiency than the one in vogue in the United States, and if our information is accurate it probably would be less efficient.
2. A long term plan should be evolved to lessen the development of high myopia, bearing in mind that little or no effect may be had upon the present generation, but that education may and probably will be able to help generations unborn.

AN ANALYSIS OF CARDIAC ABNORMALITIES IN 460 SELECTEES

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M. P. Gethner, M.D.
CHICAGO

In reviewing the statistics* for the last war 1914-1918, Lewis estimated that about five sixths of the British Army diagnosis of organic heart disease were erroneous. The enormous wastage of man power, invalidism, and pensions resulting is clearly brought out in his report which shows that seventy thousand soldiers were invalided for organic heart disease and forty-four thousand for effort syndrome.[1] In looking over the statistics of the American army as compiled in Vol. XV, p. 222, World War Statistics[2] one finds that the morbidity from cardiac disease, measured in days lost from service, was as follows: — valvular heart disease 487,977 of which aortic insufficiency represented 42,822, aortic stenosis 7,374, mitral insufficiency 335,227, mitral stenosis 67,765, combined mitral and aortic 15,763, etc.; arteriosclerosis and hypertension 16,639; functional disorder of the heart 92,434. These statistics include the total officers and enlisted men of the American troops.

It is obvious from these statistics that a correct evaluation of cardiac abnormalities for the induction of draftees puts upon the examiner a tremendous responsibility in the correct analysis of the individual case. To quote from Volume VI[3] of Physical Standards, "Men who desire to serve their country may from patriotic motives endeavor to conceal known valvular lesions which have given no symptoms. On the other hand men drafted for service may allege or feign symptoms to obtain exemption. It is necessary that the conclusions of the examining physician in doubtful cases will be based on objective evidence in the widest sense, physical signs, cardiac rhythm, blood pressure measurements and observed effect of effort. In the presence of questionable signs and symptoms, the history, especially of rheumatic fever may be a factor in the final decision. The examining physician's duty is to protect the interest of the Government by preventing the entrance of men whose circulatory system may be expected to break down under strain, equally by preventing the discharge of fit subjects because of unimportant deviations from normal."

The purpose of this paper is to review the statistics of the draftees referred for cardiac abnormalities to the Advisory Board No. 2, located at the Norwegian American Hospital in Chicago. Board No. 2 acted as consultant for fifty-two local boards, which included about one-third of the city's population and geographically included the north, the northwest and west portions of the city. The personnel of the Board included specialists in the major branches of surgery and medicine, who, for the most part, are members of the various American Boards. The work was begun in November, 1940 and terminated in December, 1941.

The age group of the peace time selection was 18 to 35. It may be proper to add here that the problems of a peace time draft differ

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*We are indebted to Miss Joyce A. Kessler, our secretary, who helped us collect these statistics.

somewhat from that of the induction of the prospective soldier during war. It was felt in our group that only those physically fit should be included as there were approximately sixteen million from which the required one and one half million could be drawn.

An attempt was made to standardize the cardiac examinations in our own interest or in the event others should be called in to assist us. All diastolic murmurs whether heard at the apex or at the base of the heart were considered to be organic heart disease and the draftee with such a finding was rejected. The systolic murmur, heard in so many healthy adults, was considered significant[1] only when the intensity of the murmur was loud, was increased by effort, was heard after deep inspiration and after expiration, and was present with change of posture. In addition, in obscure systolic murmurs, electrocardiographic and radiographic studies were done and an attempt to check up the past history for rheumatic fever was made.

In the 157 electrocardiographic studies of the entire group with cardiac abnormalities, we felt that the electrocardiogram was not significant in establishing the status of the prospective soldier under thirty. The repeated examinations of the heart, in the questionable cases, were definitely of more value in making final conclusions than was the electrocardiogram. This is substantiated by others[4]. In spite of our honest effort to make final decisions we were compelled to classify some as re-examination in six months, or 1B status.

The pre-systolic crescendo murmur terminating in a snappy first tone was considered as organic heart disease, particularly when the intensity increased after exercise. This murmur was often confused with the grating sound of the first tone occurring in the rapid heart of the apprehensive individual.

The hypertensive group, whether transient or persistent, with systolic pressure above 150 and diastolic above 90, were given a basal metabolic reading, an electrocardiogram, and, in some instances, intravenous pyelography was done. Re-examinations were carried out two, and in the majority, three times to rule out the influence of fear on the blood pressure reading. In no instance in this group was there any evident pathology in the ureter or kidney, as evidenced in the pyelogram. The basal metabolism alone to rule out hyperthyroidism could not be relied upon and the final decision was dependent on the careful re-check of the individual under controlled conditions. In view of the negative evidence of a causative factor in this group of fifty-eight, they were classified as essential or persistent hypertension.

Table I is a summary of the total number referred to Advisory Board No. II with questionable cardiac abnormalities. Of this group of 460, one hundred and seventeen (25%) were considered normal. The deviations from normal in this group were consistent with healthy hearts and represented variations of the normal sinus mechanism.

Essential hypertension was found in 58 or 13% of the group; rheumatic heart disease 137 or 30%; neurocirculatory asthenia in 107 or 23%; other groups 41 or 9%. It is significant that neurocirculatory asthenia made up about one-third of the entire group.

Table I

Total number of cardiac cases referred from Local Boards			460
A. Minor Deviation from Normal		117	25%
Sinus arrhythmia — sinus tachycardia questionable murmurs			
B. Essential Hypertension	58		13%
C. Rheumatic Heart Disease		137	30%
Mitral insufficiency	72		
Mitral stenosis	34		
Aortic insufficiency	5		
Mitral and Aortic insufficiency	8		
Unclassified	18		
D. Neurocirculatory Asthenia		107	23%
E. Organic Heart Disease (not clearly classified)			
Cardiac Hupertrophy	7		
Endocarditis	1		
Myocarditis	19		
Arrhythmias	9		
		36	8%
F. Arteriosclerotic Hypertensive Heart Disease	2		
G. Auricular Flutter	1		
H. Aneurysm (Luetic)	1		
I. Aortitis (Luetic)	1		1%
Total		460	

Table II. Shows the number of rejections for the entire group of 460, — 294 or 64%. These were classified as follows 1B, 93 or 32%; IV, 201 or 68%. It is possible that in the 1B group may be found who are fit for service in future re-examinations. However, it is more probable that most of these will be later classified IV, unfit for service.

Expressed objectively we were able to salvage for service 166 of the 460 referred or 36%.

The basis for rejection as set forth in paragraph 55, 56 and 57, "Physical Standards 3. as follows: Class 1B, "there are no cardiovascular criteria to warrant initial selection for this classification." However, it was decided after a conference with Major Hartlett, that 're-examination in six months' or 1B classification could be used in obscure cases. In class IV, circulatory failure, hypertrophy and dilatation, persistent tachycardia above 100, paroxysmal tachycardia, heart block, auricular fibrillation, valvular disease, congenital heart disease, persistent blood pressure above 150 systolic or above 90 diastolic, thrombophlebitis, abnormalities of the peripheral vascular system (Raynaud's, etc.,) aneurysm of any vessel, pericarditis, acute endocarditis, angina pectoris, coronary thrombosis, neurocirculatory asthenia unless mild, are enumerated as disqualifying diseases.

Table II

Accepted	166	36%
Rejected	294	64%
Rejected 294 — % of total rejected		
Essential Hypertension	58	(20%)
Rheumatic Heart Disease	137	(46%)
N.C.A.	58	(20%)
Miscellaneous	41	(14%)
Classification of Rejected inductees		
IB	93	(32%) of total
IV	201	(68%) of total

Bourne[5] states that the commonest cause of cardiovascular break-down under the strain of service is neurocirculatory asthenia, however the opinions expressed by both cardiologists and psychiatrists show the extent of the disagreement as to the nature of this syndrome. White[6] adds that "neurocirculatory asthenia is not established as yet primarily as a psychoneurosis. A cardiac neurosis may be present with none of the evidence of neurocirculatory asthenia." He further states that a more accurate designation such as psychoneurosis with neurocirculatory asthenia, or the preponderant condition should be so designated. Lewis[1] in using the term "effort syndrome" pointed out that this term does not imply disease, but rather represents a series of symptoms found in many different states. Even in his second edition of the "Soldier's Heart and Effort Syndrome," Lewis carefully avoids definition by a careful recital of the symptoms and findings in this syndrome. Kilgore[7] states, "The disturbance is of a general nature and not a reflection of real heart disease, however such symptoms referred to the heart may predominate." Ebaugh[8], a psychiatrist, recommends that such terms as neurocirculatory asthenia and all other terms that implicate a part of the body when it is only participating in a personality reaction, be deleted from medical terminology.

The syndrome of neurocirculatory asthenia is characterized by a group of symptoms (Table III) as follows: breathlessness, easy fatigue, precordial pain, palpitation, headache, faintness, giddiness. All these or any combination of these may be complained of by a victim of neurocirculatory asthenia. On physical examination these individuals have a poor nutritional state, have flabby muscles and poor posture.

Table III

Usual Symptoms and Signs in N.C.A.
Easy fatigue
Heartconsciousness
Palpitation
Faintness
Giddiness
Praecordial Pain
Tachycardia
Profuse sweating (axilla and upper lip)
Tremor of fingers
Cold clammy hands
Cyanosis of finger tips
Dermographia
In general, poor posture,
poor nutritional state,
Flabby muscles.

Excessive sweating of the hands, of the axilla, and of the upper lip is noted even when they are examined in a cold room. Their cold hands are peculiarly bluish in addition to the greasy sweat which covers them and tremor of the fingers is common. Dermographia is frequently present. The pulse rate is rapid varying between ninety and one hundred an thirty. The blood pressure is labile and in our group varied from normal to one hundred and seventy. As noted in Table IV, these patients were referred to us with a variety of diagnoses; thyrotoxicosis 12, tuberculosis 1, anxiety neurosis 2, emotional instability 2, tachycardia with hypertension 19, tachycardia 25, questionable systolic and presystolic murmurs and arrhythmia 46. In deference to the local boards who referred these patients, the differential diagnosis was not easy to make in a hurried check up without any laboratory criteria on which to base conclusions. Our standard check up for the group included a basal metabolic test, an electrocardiogram, two metre plate and frequent re-examinations, three being the maximum.

Table IV

Neurocirculatory Asthenia	107
Accepted 58	(54%)
Rejected 49	(46%)
Diagnoses from Local Boards	
Thyrotoxicosis	12
Tuberculosis	1
Anxiety neurosis	2
Emotional instability	2
Tachycardia with hypertension	19
Tachycardia	25
Systolic murmurs?	)
Presystolic murmurs?	) 46
Arrhythmia	)
Angina	)

Investigation of the high basal rates reported in some cases revealed that these individuals, either drank, smoked or ate breakfast prior to the test. Obviously such tests were worthless, yet we could not get authority to hospitalize them on the night previous so that such errors could be avoided. The electrocardiogram helped us little as no serious deviation from normal was noted in the group. Probably the frequent check up under conditions to which the draftee had become accustomed helped us much more to arrive at final decisions. The criteria for heart murmurs as used in organic heart disease was used here. As shown in Table IV, 49 or 54% of the group were accepted as fit for duty while 58 or (46%) were rejected as unfit. Of the rejected group, 25 or (43%) were classified 1B and 33 or (57%) were disqualified as unfit for military service.

What is the record of such men inducted into the army? The following table V from Lewis[1] gives a survey of 600 soldiers with neurocirculatory asthenia after a period of five years from their army discharge. Fifty-six per cent of the group remained stationery, three per cent were worse, while only 15.3 per cent were considered physically fit, or rather, remained in a state of imperfect health without developing any serious disease. They were able to return to civil life

Table V

After-histories (after Grant) of "effort syndrome" cases returning to civil life after the Great War. State after 5 years. Percentage figures

Groups	No. of cases	Fit	Improved	Stationary	Worse	Incidence of serious disease	Dead
No cardiac signs	266	16-9	15-4	57-2	2-6	10-1	2-3
Apical systolic murmur non-conducted	208	14-4	19-7	53-4	4-8	10-1	1-9
Loud apical systolic murmur conducted to axilla	25	16-0	16-0	68-0	0-0	1-0	0-0
Basal systolic murmur	79	13-9	22-8	55-7	2-5	11-3	0-0
Impulse diffuse	71	15-5	19-7	52-2	5-6	8-5	4-2
Whole group	601	15-3	17-8	56-2	3-2	8-7	2-3

and their previous occupations. If these men had been rejected in the beginning, they could have been kept home in useful employment, and would have saved the Government millions in pensions.

The care with which physical examinations have been carried out thus far, it is hoped, has and will eliminate many of the mistakes of the last war. Reports from England and this country clearly indicate that this is true. However should such individuals be inducted into the armed forces of this country, it might be well to assume the English attitude toward them and regard them as patients with a fatigue syndrome without consulting either the cardiologist or the psychiatrist thus avoiding over emphasis of the heart or the mental state. This is in contrast to the attitude[9] adopted in Germany where these anxiety neuroses are considered cowards and are forced to do manual labor in the forward area within sound of the large guns.

COMMENT:

Dr. White states that "It is of primary importance to learn far better than we now know the range of the normal heart as to size, sounds, action, roentgen picture and electrocardiogram; second, to decide what minor abnormalities may be safely passed for military service; third, to detect at their very beginning lesions of the heart and aorta, especially acute rheumatic and syphilitic aortitis; fourth, what newly acquired lesions or symptoms and signs are compatible with military life, and in what capacity."

This brief but comprehensive statement includes everything we should like to have added in our comment on the subject of the cardiovascular system of the prospective soldier.

CONCLUSIONS

1. Under the careful system of check-up adopted by our Advisory Board, it is probable that few errors were made in the group with organic heart disease.

2. The border line cases still offered a challenge to our diagnostic ability in spite of all the data available, including radiographic and electrocardiographic studies. We could not feel certain about the classification of some of this group and therefore adopted "re-examination in six months," as an alternative.

3. The candidate with neurocirculatory asthenia presented a problem in deciding his status with reference to the degree of the affliction in his particular case. It seems probable that this and other questions will be answered in the studies of the future. For the present, we must be guided by the experience of the last war, which clearly indicates that all such individuals should be kept at home at their peace time occupations.

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NEUROCIRCULATORY DISEASE IN THE SOLDIER

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Cardiovascular disturbances have always constituted one of the major problems of war. In the last war they were one-fourth as common as wounds, and with chest diseases and the psychoneuroses they accounted for the major proportion of medical ailments. History will repeat itself in this as in other respects, and the medical profession is again faced with the challenge of conserving manpower and reducing the post war economic and social nightmare of pensionaries.

The problem is comparatively simple as far as organic heart disease is concerned. The advances in cardiology have been so great that the average doctor of today has a better understanding of organic heart disease than his confreres of twenty-five years ago. Therefore, the

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present war should show a much lower incidence of organic disabilities — both during its progress and after its termination.

There is another condition, however, which has nothing to do with organic pathology, and which in the last war accounted for five out of six cases of temporary and permanent cardiac disability. This disorder was labelled as "Soldiers' Heart" during our Civil War, and as "Effort Syndrome" by the British, and "Neuro-Circulatory Asthenia" by the Americans during the last war. It is the subject of the present discussion.

At the outset it should be emphasized that it is not peculiar to war. It is not uncommon in peace time, but it is intensely aggravated — and therefore manifests itself much more dramatically — under the emotional and physical exigencies of combat.

The symptomatology is essentially the same as that which is exhibited by a normal individual when he undergoes excessive physical or emotional stress. The only difference lies in the ease with which the symptoms are produced — and herein lies the kernel of the whole situation. The victim of effort syndrome has a more sensitive trigger mechanism, develops symptoms on less provocation, and to an exaggerated degree.

In the full blown case, there is breathlessness which is characterized by a respiratory rate of 40 to 60. The accessory muscles of respiration are called into play, facial muscles express distress, the ala nasi dilate, and the skin becomes pale or dusky. Palpitation or heart consciousness may be extreme, and the heart rate may reach 150 or more. Praecordial pain is frequent. It may vary in character from a dull ache or jabs of lightning-like pain to a compressive pain with radiation to the arm and neck simulating the anginal syndrome. Other symptoms are giddiness, excessive fatigue, coarse tremors of the extremities, sweating, and occasionally attacks of syncope. The blood pressure, especially the systolic, is usually elevated, sometimes to a marked degree.

It is obvious that the individual who presents this picture is unfit for military service. As a corollary it is evident that it is incumbent upon the medical department to reject the potential cases before induction, to eliminate those individuals who develop the condition during training, and to treat those who become its victims after a period of actual soldiering.

The present discussion is confined to the problem of recognizing the potential cases and their elimination by examining boards. This problem is at the same time important and diffcult. Its importance is evidenced by the fact that nearly one-half the cases in the last war showed symptoms before their induction. Their elimination would have saved millions of dollars and a tremendous wastage of human suffering and man power. Its difficulty lies in the facts that the nature of the disorder is poorly understood, and in the impossibility of laying down any entirely adequate formulae for its recognition. The compleat examiner must be gifted with an insight into psycho-somatic medicine, an ability to deal in intangibles, and a certan clairvoyancy which will enable him to visualize the future reactions of the inductee. There is no such an examiner.

Notwithstanding the impossibility of an entirely adequate solution, it should be possible to improve upon the situation which existed during the last war. This may be accomplished by considering the etiological factors involved and in this way delineating certain etiological groupings.

The first group consists of perfectly normal individuals who eventually break under the strain of prolonged service. Modern war — entailing as it does strenuous exertion, inadequate rest, loss of sleep, exposure to the elements, changes in diet, and above all a tremendous strain on the nervous system — is bound to wreck even the most sturdy. We must accept this type of break-down as inevitable.

A second group comprises those who are just as normal but whose reserve power has been weakened by some infection — whether it be pneumonia, influenza, tonsillitis, trench fever, or dysentery. If, because of the exigencies of war, these men are returned to duty too soon, they will break under even moderate strain. In the last war, 50% of the cases of neurocirculatory asthenia which developed during service gave a history of infection. The solution would seem to lie in affording a period of convalescence which is sufficient to effect a restoration to health.

The third group exhibits certain characteristics which warrant the assumption that its members will develop symptoms on slight to moderate strain. These individuals exhibit signs of constitutional inferiority, either physical or nervous. On the physical side, they are poorly developed, visceroptotic, narrow or flat-chested, and generally delicate. The majority — often from physical necessity — have engaged in sedentary occupations during civil life, and have taken but little exercise. While a certain proportion may build up a physical reserve during the period of training, they as a rule will not stand the rigors of unlimited military service. On the nervous side, they are easily excited, highly strung, over-sensitive, tend to blush, and perspire easily. Many of them give a history of night terrors, bed-wetting, and sleep walking in childhood, and of phobias during adult life. Others are hypochondriacal, self-centered, introspective and timid. Tachycardia, tremulousness, and hypertension develop on slight provocation. They are not adjustable to the stress and emotional conflicts which modern warfare imposes.

Inasmuch as groups one and two must be accepted as inevitable, the sole hope in reducing the incidence of this disturbance is dependent upon the careful scrutiny of those individuals who fall into group three. In other words the constitutional status is the only factor over which the examiners can exercise any control.

While a sizable proportion can be eliminated during the routine examination of draftees, there will remain a large residue of potential cases which will develop symptoms during the period of training. Hence the importance of a careful follow-up system which will extend to the training camps. During the last war, approximately 20% of all cases were invalided during the training period.

The success of this rather prolonged weeding out process will depend in large part upon the alertness of the average medical officer. While the cardiologists and the psychiatrists have been responsible for the research work, and have been the main contributors to the literature, there are not sufficient numbers of either of them to take care of the many examinations. Furthermore, the disorder is of a general nature — and while it may masquerade as real heart disease or as one of a number of nervous disorders — it does not properly belong to any single specialty. It is a mosaic in which psychologic, autonomic, endocrine, and metabolic factors may be present.

For the time being, therefore, it would seem wise to take a broad view of the problem, and thereby avoid the fixation in the patients or the doctors mind of any cardiac or psychoneurotic inferiority. In other words, it should be regarded as a general fatigue state with cardiac or nervous manifestations either of which may predominate in a given case.

This type of approach would make the examining boards and the general medical officers more conscious of the situation and facilitate the early detection of milder cases. The cardiologist and the psychiatrist should serve in the capacities of consultants or advisors as to the disposition of individual cases.

Sir Thomas Lewis[1], who contributed much to the study of Effort Syndrome during the last war, has stated that 55% developed symptoms before joining, or during training. He places the fault upon the recruiting boards because they failed to realize that the stethoscope alone will not determine physical fitness. In his opinion a man's capacity for work is ascertained by putting him to work and watching his reaction. He believes that had the examinations been conducted by instructors in physical training on a parade ground, they would have been more efficient.

These conclusions are based on the premise that the examinee presents no clear signs of organic heart disease or any of the easily detectable evidences of constitutional nervous inferiority. As a corollary he insists upon the value of test exercises before induction and the follow-up observation during the more rigorous period of training. He feels that exercise tests are neglected for two reasons: first, because their value is not appreciated; and second, because they are thought to consume too much time. The amount of time which can be spent profitably can be settled only by considering the cost to the man and the nation in failing to eliminate the unfit.

A series of exercise tests conducted by suitable non-commissioned officers on many men at a time would screen out many of the actually and potentially unfit, and facilitate their careful

attention at the hands of medical advisors. He concluded that some such method is essential to sound recruiting.

The direct antithesis to this method of approach is the attitude of many of the present American examining boards. In some of these there is a tendency for the internists to confine themselves to the detection of organic heart disease, and to allow the psychiatrists to dispose of the functional cases. The latter tend to eliminate entirely the concept of neuro-circulatory asthenia and to attach the label of neurasthenia or anxiety neurosis. By doing so they confuse the issue and destroy the broad approach which has been stressed in the early part of this paper.

A psychoneurotic does not necessarily exhibit the symptoms of neuro-circulatory asthenia, nor is the victim of the latter condition always a psychoneurotic. The importance of a clarity of distinction between these conditions has been emphasized by Paul White.[2] He writes: "If there is a psychoneurosis with symptoms of neurocirculatory asthenia, both conditions should be stated to be present, with the emphasis on the one which is preponderant; if only one of the two conditions is present, the correct designation should be given. Neurocirculatory Asthenia should not yet be called a psychoneurosis, or vice versa. It is hoped in the future to have a clearer understanding of their relationship."

The wisdom of this distinction becomes evident when one takes a long range view of the problem. While the psychiatrist, by virtue of his sixth sense in sizing up the emotionally unfit, is very effective in the elimination of a large group which presents a nervous heredity, and a history of maladjustments to the vicissitudes of ordinary living, he is bound to miss a group of the purely physically unfit. This group should properly be assayed by the more organically minded examiner. These men are more difficult to evaluate — and a majority are inducted.

A careful scrutiny of their reactions during training is imperative, and this scrutiny devolves upon the general medical officer and also upon the non-medical officer who observes the reactions of the trainee to severe physical exertion.

All theoretical considerations aside, it has been necessary for the war department to issue certain regulations to examining centers. These are covered in Mobilization Regulations (M R 1-9), and the boards are instructed to accept or reject a man in accordance with these regulations. There is no middle road. The criteria for rejection are listed under Par. 57. They include: Pulse rates over 100 which do not subside with rest. Rapid rates which are due to temporary excitement or nervousness will usually subside after an hour of recumbency. These individuals may be accepted. Initial rates of 130 rarely return to normal, and therefore it is a waste of time and effort to hold these men over for further examination.

The regulations re B-P. state that a persistent reading of 150/90 at rest is a cause for rejection unless the increased pressure is due to psychic reaction or secondary to renal or systemic disease. A reading is regarded as "persistent" when it is sustained at a high level in spite of adequate rest and the distraction of repeated examinations.

Altho a strict adherence to these formulae may result in the rejection of a certain number of men who might subsequently make a satisfactory adjustment to military life, it will weed out a majority of the absolutely unfit.

When supplemented by a survey of the general physical and nervous constitution as determined by a brief inquiry into the past history, and a search for the presence of the stigmata of physical and nervous inferiority as previously outlined, they furnish the best criteria which are presently available. By eliminating those who are constitutionally unfit for peace time pursuits, this method of approach will forestall many of the breakdowns of war.

Unfortunately the problem does not end here. Many borderline cases will and should be inducted. During the training period these men will be subjected to the necessity of making a radical, mental, emotional, and physical adjustment to a new environment. Many of them will develop evidence of nervous or physical inadequacy. It would seem wise to discharge the nervously inadequate without further ado. The individual who breaks down nervously during the comparatively safe training period will never make a good soldier — even as a noncombatant. The army is better off without him.

Those who are physically below par present an entirely different problem. Most of them are

recruited from the white-collar class and have led sedentary lives. They are psychologically normal. The spirit is willing, but the flesh is weak. Many of them can be rehabilitated to a plane where they will be valuable in one of the many necessary branches of limited service. They should be put on a less concentrated training regime and subjected to a process of hardening which is proportioned to their physical limitations.

The importance of careful team work on the part of medical officers, line officers, and drill instructors during the training period cannot be over-emphasized. An intelligent appraisal of the physical and emotional reactions of the trainee is the only sure method of eliminating the borderline cases. It is a difficult and time-consuming process, but it will pay large dividends in military efficiency, conservation of man power, and governmental economy in the immediate and distant future.

CONCLUSION

The syndrome of Neurocirculatory Asthenia is one of the most challenging problems of war. The exact mechanisms involved are poorly understood, and its development is conditioned by the interplay of many varied factors. In its essence it is a product of a physical or nervous strain which is beyond the limitations of the affected individual. It belongs neither to the cardiologist or to the psychiatrist except from a theoretical standpoint. For the time being, it would seem wise to consider it as a broad problem of unfitness, and thereby enlist the cooperation of general medical and non-medical personnel in its early detection.

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When you have made an observation of value or reached a conclusion concerning the unusual, publish it. Avoid carrying unpublished knowledge to the grave! The three great foes of the physician are ignorance which is sin; apathy, which is the world; and vice which is the devil. —*Sir William Osler.*

INCIDENCE OF PULMONARY TUBERCULOSIS AS DETECTED ROENTGENOLOGICALLY IN A SELECTED GROUP OF INDUCTEES —

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The value of an adequate roentgenological examination of the chest of all prospective recruits has been emphasized by numerous authors in the past two years. The experience of workers doing survey work in the various sections of the country has shown that physical diagnosis is much less reliable than roentgenography in the detection of tuberculosis. A thorough roentgenological study of the chest is universally recognized as the most trustworthy means of detecting pulmonary tuberculosis. Plunkett[1] has emphasized the fact that tuberculosis still remains second in importance as a cause of death in the group 20 to 34 years of age, while the highest incidence of morbidity from tuberculosis is in individuals 15 to 29 years of age. The great majority of men inducted into military service to date are in this age group.

It has been estimated that tuberculosis in general represents about one-fourth of the total amount paid for medical disabilities in the last war. Spillman[2] estimated in 1940 that "tuberculosis during and after the World War has cost approximately $960,000,000 to date in compensation, vocational training, insurance and hospitalization." The tuberculosis problem of World War I and in the present mobilization has been discussed at length by Pollock[3] who reports that the cost of tuberculosis since the last war has been approximately $1,000,000,000, with a monthly cost in the year 1941 of approximately $3,000,000. The estimated cost of each individual developing tuberculosis in the last war has been $10,000 plus $50 per month or about $30,000 per man. Since we are again confronted with the necessity of a national mobilization of man power it will be well to remember

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and profit by the experiences of twenty-five years ago. The lessons learned, supplemented by further knowledge acquired in the past quarter of a century, should be applied as far as the tuberculosis problem is concerned.

The importance of a routine chest roentgenogram for prospective recruits was realized by the medical personnel of both the Army and the Navy at the outset. At the beginning of the mobilization period adequate x-ray equipment was not available for all of the induction centers scattered throughout the United States. Both the Army and the Navy have made exhaustive studies of the various roentgenological procedures in use. The Navy has adopted a 35 mm. film for routine chest study. DeLorimer[4,5] has discussed the various methods in detail as to trust for mass studies, co-ordination with other examinations, future reference, unit cost per examination, and initial cost of auxiliary equipment. This evaluation of all the procedures being used in civilian practice led to the official adoption by the Army of the stereoscopic technique using 4x5″ films. Most authorities now feel that the 4x5″ film made stereoscopically is adequate for a survey study and many of the writers feel that it is more trustworthy than a single 14x17″ roentgenogram. The unit cost per examination for a 4x5″ stereoscopic study is approximately 10 to 12 cents as compared to 54 cents for the 14x17″ film and $1.08 for the stereoscopic pair of 14x17″ films. Filing of the smaller film for future reference becomes much less a problem than the more bulky conventional 14x17″ film. It is universally agreed that whatever the cost of the examination, it is justified in view of the experience with this problem in the last World War.

This paper will be concerned with the discussion of the incidence of tuberculosis in a selected group of inductees. Since the Chicago Army Induction Center was not equipped to carry out these roentgen examinations when the induction of selectees began (November 18, 1940), arrangements were made with Northwestern University Medical School for this work. Not a sufficient amount of equipment was available at this institution to examine all of the inductees and hence certain criteria were used for the selection of the men to be examined rontgenologically. These criteria consisted of recent loss of weight, underweight, family or personal history of exposure, and abnormal physical findings. The examination consisted of a single postero-anterior 14x17″ film of the thorax. If questionable findings were noted and a further study was indicated, the recruit was returned for fluoroscopy, and in several instances, stereoscopic and lateral films. In an effort to co-operate with the examining physicians and not retard the flow of registrants through the Induction Center, all films were interpreted in the dark room before drying.

In March, 1941, it became necessary to move the Induction Center to a larger Armory on the west side and a similar arrangement for roentgen examinations was made with Presbyterian Hospital. This arrangement continued until July 31, 1941 when a photo-roentgen unit was installed at the Induction Center. It should be emphasized again that we examined only that group of inductees referred to us by the physicians on the Induction Board. It should be noted further that because of the lack of facilities and equipment during the early months of the induction of selectees, a large number of men throughout the country, estimated to be about half of the men inducted, did not have a roentgen examination of the chest. Undoubtedly among this group are many men with either minimal or more advanced tuberculosis who will be discovered to have tuberculosis at a later date and will become beneficiaries of the Government for disease supposedly contracted while in Service. It is our understanding that equipment has been supplied to all Induction Centers in recent months and that the chests of all inductees are examined roentgenologically.

All of the roentgenograms made of the chest of this selected group of inductees were interpreted by the authors. The United States Army Regulation MR1-9 Standard of Physical Examination was followed in the interpretation.

From November 18, 1940 to July 31, 1941, 3,634 inductees were examined at the two institutions. The men examined came from all sections of the State of Illinois. Of this group, 2,414 or 66.4% were found to have no roentgen evidence of tuberculosis. A number of men, however, in this group had roentgen evidence of other primary disqualifying lesions. Calcareous deposits either in the parenchyma or the lymph nodes, or both, were found in 1,157

INCIDENCE OF PULMONARY TUBERCULOSIS IN A SELECTED GROUP OF 3,634 INDUCTEES EXAMINED ROENTGENOLOGICALLY FOR UNITED STATES ARMY.

Diagnosis	Number Examined	Per Cent
Negative (no evidence of tuberculosis	2,414	66.4
Calcium deposits in parenchyma and/or lymph nodes	1,157	31.9
Tuberculosis, active	63	1.7
TOTAL	3,634	100.0

men or 31.9%. These calcareous deposits varied in size and number as well as in distribution. In some instances the number or the size of the calcareous deposits disqualified the man for military service. Lesions having the characteristic roentgen appearance of active tuberculosis were found in 63 men, or 1.7%. In this group were included minimal tuberculosis, lesions in excess of minimal, moderately advanced, far advanced with and without cavities. As would be expected these lesions varied in size, some of them being coin-shaped, others having a soft pneumonic appearance, but all of the lesions having the characteristics which one associates with active pulmonary tuberculosis. The percentage of rejections for tuberculosis during this period of time will not correspond with the figures given for active pulmonary tuberculosis, as undoubtedly some of the men with extensive calcareous deposits were rejected because the number or the size of these deposits was greater than the Army regulations permit. We do not have at our disposal the exact number of rejections during this period of time.

There has appeared in the literature during the past few months a number of articles dealing with the incidence of pulmonary tuberculosis in inductees and National Guardsmen. Edwards and Ehrlich,[6] in a report of the roentgen findings of 41,809 inductees and 9,541 National Guardsmen in New York City, detected 561 men with pulmonary tuberculosis or a percentage of approximately 1.1%. Of 14,923 inductees examined in Buffalo, Syracuse and Albany, New York, Plunkett[1] states that .9% were disqualified for military service because of roentgen evidence of tuberculosis. In a group of 11,870 inductees and National Guardsmen in Baltimore, Maryland, Ashbury[7] found that 1.2% were rejected because of pulmonary tuberculosis. Reynolds[8] reports on the experience in Pennsylvania in a group of 51,131 inductees, of which 1,169 or 2.12% had pulmonary tuberculosis and were rejected. It will be noted that the percentage reported in this paper is somewhat higher than those given elsewhere but it should be borne in mind that the men examined were referred to us because x-ray examination appeared to be indicated. Routine roentgen examinations of all inductees were not made during this period.

It becomes quite evident from a review of the literature that a thorough routine roentgenographic examination of the cest of each inductee is essential if the tremendous expenditure for tuberculosis in the last World War is to be avoided. In addition to the immediate value for military purposes, routine pre-induction roentgenography of the chest becomes an effective measure in promoting both personal and public health. By this means a great number of men having minimal tuberculosis will be detected and can be adequately treated, thus protecting the public in general and saving the individual a prolonged period of disability by preventing progress of the lesion to an advanced state.

SUMMARY

1. A roentgenological study of the chest offers the most trustworthy means of detecting tuberculosis.

2. The importance of a routine roentgenogram of the chest of all prospective recruits has been discussed.

3. The cost of these examinations is justified by the estimated cost of tuberculosis in the last World War.

4. A study of a selected group of 3,634 inductees examined roentgenologically in Chicago revealed 2,414 or 66.4% without evidence of tuberculosis, 1,157 or 31.9% with calcareous deposits in the parenchyma or the lymph nodes, and 63 or 1.7% with roentgen evidence of active pulmonary tuberculosis. The percentage of active pulmonary tuberculosis in this group compares favorably with the percentages reported in the literature.

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NEUROPSYCHIATRIC PROBLEMS OF THE PRESENT WAR

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One of the most serious problems facing the physician in the last War was neuropsychiatric. Armies of all nations were affected. In July 1918, the situation in the American Army became so acute that General John Pershing cabled: "Prevalence of mental disorders in replacement troops recently received suggests urgent importance of intensive efforts in eliminating mentally unfit from organization of the new draft prior to departure from the United States ..."

It had been found in the personnel who had already been sent abroad, that many were disabled by such gross entities as tabes dorsalis, dementia paralytica, epilepsy, psychoses, psychoneuroses and even imbecility. The great predominance of the psychoneuroses was particularly surprising. Further investigation revealed that in the same body of men, there were soldiers who had been rejected by the neuropsychiatric boards, but they had nevertheless been admitted to the Army.

From the Department of Nervous and Mental Diseases, Northwestern University Medical School, Chicago, Illinois. Presented before the Joint Session of Sections on Medicine, Surgery, Public Health and Hygiene, Pediatrics, and Obstetrics and Gynecology, 102nd Annual Meeting, Illinois State Medical Society, Springfield, May 20, 1942.

To meet the situation in the present war, the Surgeon General prepared Circular Letter No. 19, 1941. Similar subject matter is also to be found in Medical Circular No. 1, 1941, Selective Service System. The letter follows in part:

1. The Surgeon General desires that medical officers examining for voluntary enlistment and selectees for induction be especially alert to detect all persons with deficiency, constitutional psychopathy, pre-psychotic and post-psychotic personality or psychosis and other persons who later may disrupt discipline and morale, retard progressive military training, occupy hospital beds urgently needed for acutely ill patients and finally become an economic burden to the Government.

2. The following information is intended solely as a practical guide, and neuropsychiatrists are enjoined to apply it with discretion and mature judgment.

3. During the period from April 1, 1917, to December 31, 1919, no less than 97,657 patients were admitted to hospitals with neuropsychiatric diseases .... (He then lists some of the cases)

4. The soldier must be looked on as a fighting unit requiring certain limited and definite qualifications. Not all persons are adaptable to restrictions and inhibitions of personal desires and comforts, to deprivation of rest, food or shelter or to the extraordinary demands for prolonged physical and mental activity often imposed by active military service .... The letter concludes with a classification of the more common neuropsychiatric conditions.

To date the government has spent one billion dollars for the neuropsychiatric disorders resulting from the last war. Almost 100,000 men were rendered unfit. It is now estimated that the average cost to the government for each soldier, is $30,000. The ultimate cost will be much larger. Fifty-five percent of all military hospital cases are neuropsychiatric and in any army hospital in the United States or its territories, 25% of the beds are taken up by neuropsychiatric cases.

In working with potential or actual army personnel, the neuropsychiatrist encounters the following categories. We quote Circular Letter No. 19 in part:

(1) *Mental deficiency.* Normal adult mentality is generally estimated at 15 to 16 years. Terman of Leland-Stanford University utilizes 15 years as the divisor in calculating the intelligence quotient on his recently revised Stanford-Binet Form L. intelligence test. The British experience with mental defectives may be summarized thus: "All men with a mental age up to 8 years, 86% of those with a mental age between 8 and 9 years, 33% of those with a mental age of 10 years, and 28% of those with a mental age of 11 years are untrainable. Such people, when put to work on mechanical equipment, promptly get into accidents. They are always reporting for sick call. They are completely unable to use ingenuity." These men are obviously a hazard in the army. While some are valuable as porters and orderlies about the camps, they are more a liability than an asset. One such boy that we tried to keep from joining, enlisted, and was accepted because his appearance was bright. He was continuously in trouble because he could not learn the drill, could not handle a rifle. He was on K.P. most of the time. After going A.W.O.L. twice he was finally released as "mentally defective."

(2) *Psychopathic Personality Disorders:* "Under this heading is placed an ill-defined, more or less heterogeneous group of conditions in which the patients, although they do not suffer from a congenital defect in the intellectual sphere, manifest a definite defect in their ability to profit by experience .... They are unable to respond in an adult social manner to the demands of honesty, truthfulness, decency and consideration of their associates. They are emotionally unstable and not to be depended on; they act impulsively, with poor judgment; they are always in difficulties, have many and various schemes without any logical basis, lack tenacity of purpose, are easily influenced and are often in conflict with the law. They do not take kindly to regimentation .... Such persons have a decided influence on their associates and on the morale of the organization, for they will not conform to organized authority, and they derive much satisfaction from cultivating insubordination in others. Frequently they make a favorable impression, are neat, talk well and well-mannered. In this general group are to be placed many homosexual persons, grotesque and pathologic liars, vagabonds, inadequate and emotionally unstable persons, petty offenders, swindlers, kleptomaniacs, pyromaniacs, alcoholic persons, and likewise those highly irritable and arrogant persons, the so-called pseudoquerulents ("guard-house lawyers") who are forever critical of organized authority and imbued with feelings of abuse and lack of consideration by their fellows."

Some of these get into the army through the efforts of well-meaning but short-sighted judges before whom they appear for some crime, such as tire-stealing or forgery. The judge will say, "I will vacate your sentence if you join the service." Thus, the army acquires a trouble-maker.

(3) *Manic-Depressive Type.* Such a person may be a manic type, a depressive, or both. The first is a busy, high-pressure-salesman personality. Milder forms are called hypomanic. This individual is continuously on the go, off on private missions, due to press of his own activity, and cannot fit into the teamwork, so necessary in a war like this. He is irritable, irrepressible and hard to handle.

The depressive is a melancholy person who slows down because of his psychomotor retardation. He is so blue that he is unable to will action. He becomes disinterested in eating, cannot sleep, loses weight, is tense and very miserable. He feels useless, guilty of some sin, and ultimately becomes suicidal. Many suicides are in this group. Mentality is well retained, and these people often are passed up as feigning a somatic disorder, which in reality is only a symptom of the depressive state. Heredity is important in such cases.

Sometimes the manic-depressive individual may swing from one phase to the other and we speak of the cyclic form of the disease. One such patient of ours recently discharged from the army developed an attack while in the service. He "took command" of the company,

disobeyed superior officers and had to be confined. Later in confinement he quieted down and became very depressed. Then he tried to hang himself. He was discharged to civilian life. When he recovered, he asked, "How did I ever get that way?"

(4) *Psychoneuroses.* This constitutes a large group of individuals who unconsciously convert their anxieties into physical symptoms. Some symptoms are in the autonomic sphere and we see flushing, rapid beating, irritable heart, so-called "soldiers heart" or effort syndrome, "dyspepsia, diarrhea and urinary frequency. Others develop so-called conversion neuroses, hysterical paralyses, aphonia and sensory defects. Recently a boy, after target practice, developed blindness in both eyes. He was discharged with a diagnosis of "Chronic glaucoma" but he cleared up easily with psychotherapy. About nine-tenths of the cases of "heart-disease" in the last war were functional in origin. The symptoms were "psychosomatic" manifestations of emotional drives.

(5) *Schizophrenia.* This in civil life is our most important and most serious mental disorder. It fills our state hospitals. In military life we see everything from the schizoid personality to the full-blown schizophrenia. The former is a brooder who has always been a "loner". He mixes poorly and is suspicious of his fellows. He broods within himself and has a special interpretation for the chance remarks of his fellows. He worries about his past activities.

Under stress and strain such a person usually breaks down into a full-blown case of dementia praecox. He may have delusions, hallucinations and symptoms of persecution or paranoid trends. One such case occurred recently in a brilliant graduate of a Chicago university. He felt that he was being persecuted by his fellows and finally shot off his hand. Now he is a well-developed case of paranoid schizophrenia.

(6) *Chronic Alcoholism.* These men are serious problems in any army. They are pathological liars, unreliable in every way, often paranoid, and when the pressure becomes great, go A.W.O.L. In acute stages they develop hallucinations and delirium tremens. Ultimately they break down physically, mentally and ethically.

(7) *Organic Disorders.* These are named last but list a very important arry of diseases: idiopathic epilepsy, central nervous system syphilis, multiple sclerosis, atrophies, dystrophies and a host of others. Usually they are eliminated in the initial examination, but a certain number get thru or develop while the men are in service. Thus, we have seen cases of brain tumor, syringomyelia, cervical rib, dystrophy, atrophy, heredo-degenerative diseases of different types, etc.

One may raise the question, "How do such persons get into the Army?" Many enlist during peace time. They are drifters and get into the service as a refuge. Others came in during the early rush that overwhelmed the induction stations. Some come thru stations that lacked a neuropsychiatrist, of which there is still a dearth for army work. Even in the best induction centers some neuropsychiatric problems get thru because of the conditions of the examination. The psychiatrist is given 5 to 7 minutes to examine a man. Obviously one can learn little about a man in so short a time, especially in a field where history is so important. In a situation where a miss costs so many thousands of dollars, one would like to have access to a social history on the man. This could be obtained if there were enough social workers, but there are not. Access could be had to the millions of records prepared by social agencies during the depression years. The police blotters and F. B.I. records would also be useful.

It is amazing, however, how much can be accomplished by even a brief examination. The patient is stripped. Absent reflexes, atrophies, nystagmus and Argyll-Robertson pupils are easily discovered. The tremor of the chronic alcoholic or of the patient with multiple sclerosis, or the vasomotor instability of the psychonerurotic is obvious. A few well-placed questions about the inductee's school and work record, his attitude toward any bodily complaints, his opinion in regards to entering the army, or towards leaving home, all throw light on his personality. The question of leaving his family is probably the most important because this more than anything else seems to break down an otherwise stable man. Gillespie, psychiatrist to the R.A.F. has noted that the most

common cause for breakdown in the English forces or civilian population is not bombing but breaking up and dislocation of families.

The government has one safety-valve. If an enlisted man or a commissioned officer, up to six months after induction or order to extended active duty, respectively breaks down, the government is not liable and may return the man for care to the community from which he came. If no such care is available, the soldier may be sent to St. Elizabeth Hospital, Washington, D. C. The government is not liable if the disability can be proved to have existed prior to entry into service. Thus, many individuals who could not stand conditions of actual combat are screened out during the training period.

It is important to remember that all men are not adaptable to the rigid discipline of military life. While the susceptible individual must be weeded out to prevent his breaking down, the army must also be protected from him.

Psychiatric patients break down morale. A program has been worked out, or possibly is already working in some places to care for men who have been rejected for neuropsychiatric reasons. Otherwise many such would become nomads, wandering about with the idea that they are "bugs", as they put it. The rejectee may be useful in industry. The Army now also utilizes men already inducted who are only partially disabled, placing them in new positions after reclassification. Thus, men who are inept as a regular soldier are re-assigned to special training battalions established at replacement training centers, to the end of finding some position into which they may fit. Thus the government is utilizing all available manpower. Individuals with actual nervous and mental disease are discharged from the service.

All in all, considering the magnitude of the problem, the shortage of well-trained neuropsychiatrists, and the brief time in which the task had to be planned and executed, the work has been rather well done. Station hospital neuropsychiatrists are weeding out many that passed thru induction centers. The real test will come when large numbers of troops are subjected to battle conditions. Neuropsychiatric experience from theaters of actual operations, which will probably form the basis of a future paper, will show how effective our program of prophylaxis has been.

THE TREATMENT OF SURGICAL SHOCK

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Shock is a subject which has baffled the surgeons for many years. Its pathogenesis has been and still is the basis of much experimental and clinical research. While many theories have been proposed and many exploded, progress is being made in the solution of the problem.

Clinical traumatic shock, is defined as a circulatory deficiency which is neither cardiac nor vasomotor in origin and is characterized by the following:

1. Decrease in blood volume (oligemia)
2. Reduced cardiac output
3. Diminished blood flow
4. Hemoconcentration
5. Tissue anoxia
6. Capillary congestion
7. Vasoconstriction
8. Decrease in venous pressure
9. Low blood pressure
10. Decreased muscular tone
11. Decreased metabolism
12. Acapnia
13. Acidosis

Shock may be primary or secondary. Primary shock is a condition which develops immediately after an injury; it has a nervous basis, and pain and psychic factors play a role through their effect upon the vascular system.

Secondary, surgical, wound or traumatic shock is that state of general collapse which follows two, three or four hours after severe tissue injury. It is this type of shock which will be discussed in this paper.

Surgical shock may be produced by many conditions, but extremely painful trauma, severe crushing injuries and hemorrhage are the most frequent causes. Hemorrhage may be either "red" or "white". Loss of whole blood either outside the body or within the body cavities is the hemorrhage we are all familiar with and is called "red" hemorrhage. "White" hemorrhage is seen in patients suffering from shock produced by severe burns; it is a leakage of plasma through the capillary bed into the soft tissue and in such a condition it is frequently said that "the patient bled to death into his own tissues". This increased or abnormal permeability of the capillary bed is caused, according to Moon[1], by any type of injury to the endothelial lining of the capillaries, thereby causing increased permeability to plasma colloids. Leakage of plasma from the blood produces hemoconcentration, decreased blood volume, diminished blood flow, reduced cardiac output and finally tissue anoxia which, if uncompensated, will give rise to symptoms of shock eventually leading to death unless the above processes are reversed by appropriate methods of treatment. While Moon very clearly differentiates shock from the effects of hemorrhage, no attempt will be made in this paper to differentiate the two conditions.

The aim of treatment in surgical shock is to reverse or rectify the abnormal processes mentioned above, and to do this the following must be carried out: Replacement of the fluid lost, and prevention of further fluid loss. Harkins[2] has clearly outlined the empiric and specific treatment of shock as follows:

I. *Empiric treatment:*

a. Rest
b. Warmth
c. Elevation of the feet
d. Tight bandaging of the extremities
e. Administration of sedatives
f. Stimulants
g. Vasospastics

II. *Specific treatment:*

a. Blood substitutes
   1. Water
   2. Plasma
      Normal, concentrated or diluted
      Dried
      Calcified
   3. Whole blood
   4. Serum
   5. Crystalloids
      Sodium chloride
      Dextrose
      Ringer's solution
      Hartman's solution
      Locke's solution
   6. Acacia
   7. Red cells

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8. Hemoglobin — Ringer's solution
9. Ascitic fluid

b. Oxygen therapy

c. Adrenal cortical extract

Empiric Treatment — Rest, as in all pathologic conditions, is essential. Sedation in the form of narcotics or preferably the barbiturates may be necessary; however, their intensive administration is to be avoided because of the danger of too marked depression of vital functions, especially so in Shock due to head injury. Warmth is necessary but should not be extreme, especially in patients suffering from shock due to exposure and freezing. Elevation of the feet or lowering of the head allows more blood to reach the respiratory center. On the battlefield this can be accomplished by having the stretcher bearer at the patient's feet put his end of the stretcher on his shoulders while the other bearer carries the head end at arm's length, thus lowering the head. Tight bandaging of the extremities decreases the vascular bed and probably increases the blood volume to the vital centers. This may also prevent "white" hemorrhage or plasma loss through the capillaries in the extremities. Koch and Allen[3] use pressure bandages in severe burn cases, hoping that this pressure will prevent further fluid loss into the tissues. Stimulants should not be used too intensively, especially in shock due to hemorrhage, since their administration might increase the hemorrhage. Warm coffee, or whiskey, if the patient is conscious, are permissible. Vasospastics are merely symptomatic therapeutic agents and if used too freely may actually be harmful. Freeman[4] and others have shown that epinephrine alone will cause shock.

Specific Treatment — Plasma transfusions at the present time seem to hold the spotlight of the specific treatment. It has been stated by Strumia[5] that "there is no emergency condition except carbon monoxide poisoning in which plasma is not as useful as whole blood." The material for transfusions may be prepared in several ways and is dispensed usually as liquid or frozen plasma in civilian practice, and dried or concentrated plasma in military practice. It may be given anywhere without typing, even at the front line first aid stations where it is most needed. According to Blalock[6], serum transfusions are not preferable to plasma. Citrated whole blood in my opinion would be advisable in shock due to hemorrhage where there is profound anemia; in such a case, blood cells and plasma are both lost and whole blood would replace both losses. Water prevents dehydration but is not a complete restorative of blood volume. Crystalloids, as shown by Beard and Blalock[7], may actually do more harm than good if not supplemented by blood or plasma, since they diffuse out through the permeable capillary wall unless there is an adequate amount of plasma protein present in the blood. Acacia was used in World War I but has been supplanted by plasma which is more beneficial and not as dangerous. The other blood substitutes are either experimental or not generally accepted.

For the past year and a half at Mercy Hospital, with the assistance of our surgical resident, Dr. M. McCarthy, some clinical investigation has been carried out on various types of cases subjected to different operative procedures: cell volume determinations with the hematocrit tubes, specific gravity of the plasma or serum, and plasma or serum protein determinations by means of the Kagan-Falling drop proteinometer have been determined in over 50 clinical cases. If the cell volume was considerably below the normal of 45, as is found in cases of secondary hemorrhage, whole blood transfusions were given. If, however, the cell volume is above the normal of 45, as occurs in severe burns, acute pancreatitis and other conditions where there is a hemoconcentration and the plasma protein is below the normal of 7% plasma transfusions have been advised. Furthermore, fluid balance can be more accurately checked by the above determinations and used as a guide to fluid therapy.

Whole blood, plasma or serum can usually be given by intravenous needle, but in severe shock there is a compensatory vasoconstriction so that many times the veins are difficult or impossible to enter. In such cases canalization of the veins may be necessary but even this is sometimes not possible due to thrombosis from previous needling. When this occurs, sternal transfusions in patients over three years of age, as recently reported by Tocantins[8],

may be used as a last resort. Our experience with sternal transfusion has been limited to one case where it was not entirely satisfactory, probably due to our inexperience in its use.

Of the other specific treatments of shock, oxygen therapy is of prime importance. One of the reasons for the irreversibility of the shock syndrome is anoxic damage to the tissues. Early prevention and continued treatment with high oxygen percentages are essential. Schnedorf and Orr[9] have recently shown experimentally the value of oxygen inhalations as an adjunct in the treatment of shock due to hemorrhage. The use of adrenal cortical extract is still in the experimental stage but offers great promise and should be used, in my opinion, as a therapeutic agent, as well as a prophylactic agent. Cole and his associates[10] have recently shown experimentally that this preparation is of definite value prophylactically.

SUMMARY AND CONCLUSIONS

1. A resumé has been given of the current treatment of shock, both empiric and specific.

2. The common empiric treatments have been discussed.

3. Plasma transfusions in liberal amounts rank first in treatment, followed by whole blood transfusions. Crystalloids will not supplant plasma or whole blood but are valuable adjuncts.

4. Oxygen inhalations and adrenal cortical extracts are valuable adjuncts both as a prophylaxis and as a treatment of shock.

5. The value of the hematocrit, specific gravity of plasma or serum, and plasma protein determinations has been discussed.

6. The use of sternal transfusions has been mentioned when other methods of intravenous therapy have failed.

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DISCUSSION

Dr. John L. Keeley, Chicago: Dr. Vaughn's presentation has left very little to be said about the treatment of shock. I know of nothing in the accepted treatment at the present time that has been omitted from his discussion. The one point upon which everybody agrees is that the essential feature of secondary shock is the disparity between the total circulating blood volume and the capacity of the cardiovascular system. As a result of anoxia fluid is lost from the blood stream into the tissues. This loss is progressive and, as Dr. Vaughn pointed out, leads to a considerable degree of hemoconcentration. This can be demonstrated by a study of serial samples of blood. We are thus able to note the hemoconcentration and anticipate the onset of shock. As the total circulating blood volume decreases vasoconstriction becomes more marked and in this way adequate pressure is maintained for a period of several hours. When vasoconstriction is no longer able to compensate for the decreasing blood volume, the blood pressure falls, the pulse rises and the patient develops the typical shock picture. We may therefore speak of compensated and uncompensated shock, as pointed out by Cannon more than twenty years ago.

If we would consider the patient's general condition and the type and severity of trauma, whether operative or accidental, we would be able to select those patients who are liable to develop shock and treat them early. As Dr. Vaughn mentioned, experimental work has been

carried out in various types of cases such as ruptured peptic ulcer, pancreatitis and peritonitis and the necessity of plasma transfusions in these states has been shown. We must remember that the most important point in the treatment of shock is to restore the normal relationship between the circulating blood volume and the capacity of the cardiovascular system.

BURNS TREATED BY PAPER TISSUE — COD LIVER OIL OINTMENT DRESSING AFTER SURGICAL CLEANSING

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Burns in Peacetime are fourth in our casualty lists. Burns in Wartime of our modern type become first in our casualty list. My friends and nearby neighbors, Naval Medical Officers, have on two occasions remarked data which our medical literature has already told you. Pearl Harbor casualties were burns in sixty per cent and the hospital admissions for burns forty per cent of their totals. Military and civilian casualties likewise run high judging from British literature.

In view of these major numbers our attention must be directed to treatment made available in major materiel and personnel. Therefore, let our technique be major in its exactness and thoroughness in so far as conditions permit. To a medical person technique at once brings to mind cleanliness and skilfulness practiced, maintained everywhere, under every circumstance. Materials and measures available will vary. To strive for cleanliness and skilfulness will not vary. The words major and majority imply important and the largest number. Therefore, burns which are so important in their number and severity of occurrences must be treated by the largest number of persons in a manner so simple, so gentle, so safe that the greatest good will reach the greatest number. In our battle against burns and their complications, let our measures be for the "mostest men — fustest" to borrow words from a fighting officer for other fighting officers and men as well as for those not in the armed forces.

Today any peacetime development one may make available to our fellow workers in the armed services as well as in defense or civilian services may serve where and when most needed. Hence, it is a source of humble pride and appreciation that I know these simple procedures and supplies about which I am to talk to you are being placed in readiness at sea, at land posts, within and without the armed branches. For such information, I am deeply grateful.

In a former paper the writer[1] used this statement: A burn surgically clean from soapy water, sterile water cleansing, dried, covered with cod liver oil ointment direct, this covered by a single layer paper tissue, redressed a minimal number of times, kept in daily motion will heal with no infection, a minimum of pain and scar.

To this may I add: An infected burn cleansed freely with soapy water, sterile water and debridement, dried, covered by cod liver oil ointment direct, this covered by single layer paper tissue, redressed daily, then less frequently as required, kept in daily motion will heal in a minimum time with a minimum of pain and scar without contracture. In either division any other good surgical measure may be used except the surface medicament and its paper tissue covering are the only dressing.

Basically a burn is like its kindred wounds caused by any measure or material, namely, tissue (or tissues) has (or have) been injured or destroyed and must be treated, nurtured and replaced by that solitary source — the blood. Consequently, the smaller the job the more efficiently and rapidly the task of healing is accomplished. Then to prevent infection thereby lifting a great load of transportation as well as segregation of supplies by vascular demands will release the main lines and their branches of circulation for other food and reconstruction requirements. We have long cleansed our other wounds surgically. Likewise, we have long closed our other wounds surgically where possible. Practiced with gentleness those two measures led to ready healing in almost all cases of clean wounds and many even though contaminated, even infected were watched to early healing. It is said by some that Davidson's[2] greatest contribution to Burn Therapy was he

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taught us to close surfaces. Still others: 'that he taught us to give sufficient attention to burns.' That no one has taught us sufficiently or emphatically enough to cleanse these burns before they are closed and to keep them clean and closed is evident in our literature of the phrases "result of a deep burn and the infection which has invariably followed it," "lesion bathed in virulent pus," "drill the eschar to find the infected area beneath," "transparent eschar to better see the infected areas," "burns — cast — all infected," etc. Therefore, I preface my description of measures with a plea put in the mouth of Pasteur and dramatized recently in "The Life of Pasteur" (cinema) when he sought the accoucheur about to deliver his daughter that he wash his hands and boil supplies used. Pasteur knew that famous flask of broth with capillary opening has borne out the facts that contact carried contamination. Not so much the air borne trouble makers, though Canadian observers have recently pointed to ward contamination by air, we know most is by contact as the source of extension. So it is when we cover by eschar or any other seal, be it ointment or otherwise, the area burned may well be sterile from heat or other causative agent but its periphery has been only partially cooked, or not at all. Therefore, to cover the two areas beneath the same blanket without cleansing will be like covering an abdomen which was cleansed or sterilized only in line of its incision and suture. To be sure some cases of either burn or incision will heal uncleansed and not infected, but our reasoning tells us many will be infected. To this end of emphasis I believe it well we talk and teach of burns as we do of other injuries and have in that way always before us a wound — be it caused by a knife, sliver of wood, a hot metal, steam or otherwise. In eighteen years of teaching it has been my endeavor to keep linked in my students' minds circulation — wounds — burns — other injuries, admonishing them to keep burns all the more clean because they are usually wider wounds, hence more subject to infection. To prepare such for cleansing may require for pain nothing, analgesics, morphia or anesthesia to be used as necessary. It is surgery. Therefore, good surgical measures must be used. To omit any factor, especially cleansing, while using the same nursing care, the same hospital ward, the same medications will give entirely different results, including infection. Blebs are left intact unless they break in cleansing. Less open wound is present. Less tender surface is exposed. Serum under a clean bleb does not become infected and is a cushion conducive to healing, is reabsorbed or spills harmlessly if covering is kept clean. Pain of large blebs before absorption or spontaneous rupture is mild.

The wounds or burn having been cleansed is then closed. For all of us that remains a formidable problem. It is agreed that the more gentle we handle injured or uninjured tissues the better our surgical results. Davidson and thousands before and after him used an eschar with some good and some bad results. Deep scars, contractures, infection difficult to find and the problem of removal of the eschar with or without skin grafting requirements seem four major difficulties. Chemical dyes single or triple have advantages not found in the tannic acid method and yet some similar disadvantages in at least three of those above-mentioned. In the Mid-West especially, the use of nonadherent dressings has been made to close the surfaces with some real advantages over the above two named, I think. Zeiss[3] uses a paraffin spray with soft thin cotton to make a "cast" and removes it daily, sponges away fluid then "recasts" with painless dressings. His results are excellent. His method is not applicable afield, in the home or in many other situations where the exacting fluid, heat and enclosed space requirements are essential. While some motion is permissible, mobility is not as free as in some other dressings. Miller,[4] Koch,[5] Fell,[4] Todd[8] and others of the Cook County Hospital Staff have shown remarkable results in these recent years of restriction especially in Children's Ward to a vaseline fine mesh gauze cast and fixation with pressure splints. Their materials are not unlike the tulle gras of British writers[7] except the latter has more ingredients, hence, becomes more complicated. For one to know Doctor Miller and Doctor Koch in their surgical theatre is at once to think of gentleness and cleanliness in handling wounds or burns. Upon some measures there will be seen differences in the nonadherent dressing I shall describe to you. While cleansing and dressing, I readily use a

general anesthetic if I believe it indicated for pain to give relief of that already present or which may come with gentle yet thorough cleansing. Their "cast" leaves covered large areas until healed or until infection is shown by restlessness, temperature rise, lymphadenopathy, etc., whereupon finding the spot may require removal of complete covering. While the pressure cast prevents fluid accumulation under the dressing some who have used it relate stasis beyond. In this connection I reiterate a reference to Maximow,[8] that dean of Cytologists, who taught us gentleness and cleanliness just as others but in a different manner. In vitro (as in vivo) he[9] showed that tissues bathed in their own fluids not contaminated, healed with rapidity and with minimum fibroblast proliferation in the scar. This included phagocytosis, granulation and epithelization. To this end I have thought of and practiced with a covering that is nonadherent, completely flexible, allows a film of normal fluid freely beneath it, and elevation and daily motion that have prevented and minimumized stasis as well as acting as a prophylactic toward circulatory accidents, thromboses or emboli (Gibbon[10] Fitzgibbon of Dublin; Potts of Chicago[11]). The nonadherence and motions permit growing across the field of granulation or epithelium that will not require stretching or breaking in later therapy.

Technique and progress are so well illustrated in a single case let us look at it. (Colored movies.)

The patient came with hand and fingers infected one week after burns by bicycle cement aflame. Appearance on March 14 shows an ointment cloth dressing used at home. Attention is directed to the flexion deformity this early in the index and midfingers. Now the cleansing with white soap, sterile water, cotton, gauze and nail brush. Debridement by pulling away the necrotic bleb edges was without pain and I did not cut into live or tender tissue. After cleansing, patting dry, covering all surfaces with ointment directly the single paper tissue covers all and separates fingers as shown. Then ambulatory dressing is completed with towel pinned in place. This I offer as a readily applied field or ambulatory dressing for use anywhere. It fits the views of Bunyan[12] even better than his "envelope method," I believe. Cultures on this initial day of treatment revealed hemolytic streptococci from sites all fingers and hand. Healing is at this stage on March 18. Only the base of the index finger and hand showed hemolytic streptococci upon yesterday's cultures. Cultures on the 20th showed no hemolytic streptococci. March 24 progress was at this stage complete filming over all third degree as well as healed second and first degree burns. March 28 dressing of four days and the hand appeared here well healed. April 3 this near final result is seen. End result of pigmentation and scars are herewith shown. Note: No contractures. Other measures known of value in good surgery — morphine, fluids, glucose, sulfonamides, nutritional attention, etc., were readily used.

Uniformity in therapy is practiced. As you have heard, the writer uses the same early and later treatment whether the case is clean or infected, whatever its causative agent, whatever the extent or degree. The designation as minor or insignificant burn means little until it comes home such as to a father who wrote of the tragic result of a friction burn upon his son's toe "when he went the power and the glory of the Presidency went with him" — Calvin Coolidge.[13]

The availability of supplies is mentioned now. Materials in the care of the infected burn of the hand in two weeks' time when it was well healed would cost retail* at the most: Soap a fraction of a cent; cod liver oil ointment (½ pound) $1.62; paper tissues (20 of a box of 200) a fraction of a cent; sulfanilamide 40c (neoprontosil, if used, $1.50); tongue blades 3c; laundry of 12 towels 24c to make a total of $2.32 (total $3.42 if neoprontosil used.) Costs to a physician or a hospital are lower.

The paper tissues packed in their usual store shelf manner may be safely used, although we feel it consoling to autoclave or flame them. Proof clinically has been found by the author who used them for lesions many years before he autoclaved them and had no infection. Ladies by the millions have used disposable tissues for every cleansing or dressing purpose. In a search of over twenty years' literature only one case of irritation is found and that is ascribed to a

* Average of current prices secured from representative local druggists.

colored variety. From our own hospital research laboratory we have these data:**

Samples from 23 boxes used as they came from shelves of novelty, dry goods and drug stores and hospital containing 10,800 tissues were taken (after packages were left open for 9 days) at different levels from near top to bottom, streaked on blood agar plates and placed in culture tubes. As technique we used the inside of the sheet in smearing. Read through 60 hours incubation results from 108 plates and 12 cultures revealed on plates only 5 growths: 2 Staphylococcus albus, 2 Micrococcus tetragenous, 1 gram negative rods, nonhemolytic. Dextrose broth cultures showed no growths. Therefore, it seems reasonable to conclude that the tissues themselves were sterile except in instances of contamination.

The reason for all these measures mentioned above lies, I believe, in the preparation of paper at the mill where hot vats then hot rollers are the only surfaces in contact with the tissues until folded, packed and then boxed. Entrance of contaminants to the inside surfaces would be very difficult.

Likewise blood agar plates and culture broths with commercial ointments newly opened or those in long use in hospital wards revealed no growths from surfaces or depths of the ointment in either plates or cultures.**

From the laboratory of Doctor William D. McNally[14] the pH of four samples of commercial ointments used by us has been found to be within the limits proposed by Doctor Gifford[15] for buffer solution use in the eye.

Clinical tests by Doctor T. G. Galloway[16] have proven the cod liver oil and high vitamin A ointments kind and healing to eye and nose mucous membrane lesions.

From such data we find the paper tissues and the ointment safe to place and use in the field, upon a ship, in a home, in a hospital, in the Doctor's office. Then may I leave this concluding point with you when cases singly or in large numbers must be treated, utilize the cleaner or detergent at hand. In the field, at sea, when the bombs and gases come to our cities soapy water in buckets or from faucets, oils, ointment itself may be the cleaners. Our line officers are taught such.[17] Our Medical Officers are teaching such.[18] The wound or burn must be clean to prevent infection. Teach the patient to "wash his hands" or even his wounds, if circumstances require, painful though it be it may become his grim duty yet inestimable "ounce of prevention." Let us Doctors do likewise.

** From Department of Medical Technology Saint Therese's Hospital, Waukegan.

CONCLUSIONS

1. A clean burn does not become infected.
2. Paper tissues (preferably white or unbleached) make a gentle, simple, safe dressing for burns or other lesions.
3. Cod liver oil ointment is a valuable adjunct in such a dressing.
4. It can be used with safety in the eye, upon mucous membranes, skin or any injured or uninjured tissue with safety.
5. Any other good surgical procedure should be a part of total therapy.
6. No rupture of a clean bleb is advised.
7. Daily motion of part burned is required.
8. Minimum scars and no contractures have occurred.
9. Materials are readily available, easily transported, not expensive.
10. In surgery we always owe gratitude to our forerunners and associates in laboratory and clinical practices. I herewith sincerely thank all those.

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DISCUSSION

Dr. LeRoy H. Sloan, Chicago: I appreciate the invitation extended to an internist to discuss the therapy of burns. For the last several months we have reviewed the literature on the technic of therapy of burns for the Therapy of Cook County Hospital which we hope will be published some day.

From the literature, within the last 25 years we have gone through several stages, such as the water bath stage in which the child is immersed in either continuously moving water or in lukewarm water in a bath. This technic is found useful particularly soon after the injury, and it is still being used and still has much in its favor as an easy technic in the emergency management of rather diffuse burns. Much of the clothing, for example, can be removed from the child with greater facility in such a bath.

The water bath stage was followed by the open air stage in which the child or adult was placed on a sterile sheet under a cradle covered with a sterile sheet. The degree of heat maintained in such a cradle was frequently so high as to further increase the discomfort of the patient and probably added to the hemoconcentration and shock rather than alleviating them.

In the minds of most of the men here the technic of the late Charles Parker, using adhesive tape frequently to excellent advantage comes to mind. This technic required extreme care and much time and great patience.

Then followed the paraffin technic which was tedious and disturbing to the patient. A modification of the paraffin technic is used at the present time, the paraffin being used in compressive bandages rather than by spray or brush.

Following the paraffin stage and the combinations of the above stages came tannic acid. The attention given to burns following the popularization of this technic by Dr. Davison undoubtedly added greatly to the efficacy of all methods and proved to be superior to many of the previous methods, but its superiority may have been in part due to the greater attention given to the chemistry of the burned patient rather than to the topical application of tannic acid which in the hands of many men produced an eschar which is not too satisfactory and which cannot be used on the face.

Following tannic acid we find the use of other technics, silver nitrate with tannic acid and the like. Lately we have come to a stage which might be termed the baboon stage. Patients are painted with gentian violet, brilliant green, rosaniline until they take on the appearance of some of our well known zoo friends. Perhaps these antiseptics have a place in the therapy of burns. It is likely that such technics will go their way as the others have.

The technic which Dr. Callahan has explained to you is a relatively simple one. The applications are sterile and the disturbance of the patient is minimal. The material used is stimulating to the production of new tissue.

From the literature one learns that the essential therapy of a patient with a severe burn is the therapy of shock. Shock is due to an acute irritation of the nerve endings as well as to hemoconcentration, loss of plasma and the like. Shock is the first thing to be treated rather than the last. A technic which reduces the shock and which supplies the patient with an antiseptic, sterile and easily applied dressing would seem to be of real value.

In addition to the therapy of shock, the debridement of the area under anesthesia is accepted by most of the writers. A compressive fixation bandage has been applied in an attempt in part to retain the medication formerly lost by constant exudation.

From a physiological angle a rise in hemoglobin appears to be an unfavorable sign. A fall in blood pressure is unfavorable. A combination of the two is particularly unfavorable. At the present time the shock of a severe burn is compated by use of plasma if the plasma protein is below normal. More attention is being given to the concentration of the chlorides in the blood. The potassium ion is apt to rise and the sodium ion to become reduced.

As judged from a review of the literature the therapy of burns is first of all a reduction to the minimum of the degree of shock already produced by the burn, the actual therapy of the shock present by anesthesia, sedation, plasma, fluids, and the like. The therapy of the burn itself, using a technic which is sterile, antiseptic and does not disturb the patient greatly and stimulates the production of new tissue. I leave to you surgeons to decide whether Dr. Callahan's technic meets these requirements. It would seem that it does.

Dr. Edwin M. Miller, Chicago: After listening very carefully to this paper and to Dr. Sloan's remarks, I really think there is very little to add to this discussion.

Dr. Callahan has endeavored to bring to us a method which perhaps simplifies the treatment of burns, but I think the chief value of his paper lies in his discussion of the general principles underlying the treatment. If there were only one right method of treatment of burns there would be no need for the use of many different materials. As the years go by, as you know, the number of different things that have been applied to burns is almost countless, and unquestionably the objective may be accomplished sometimes no matter what material is used, provided the general principles of treatment are observed. Having been on the staff of the Cook County Hospital for a long time on the Children's Service naturally I

have come in contact with a large number of burns. During this period of 15 years or so the treatment has changed considerably. We employed for many years the method of Davison, namely, application of tannic acid, and later adopted the modification of Bettman using silver nitrate with it. We have, however, during the past three years given up the use of either of these materials, and have after thorough debridement of the burned areas simply applied sterile vaselin or xeroform dressings, and covered these with copious sterile gauze compresses and left them alone for ten or twelve days. We feel that frequent change of dressings increases the likelihood of bacterial contamination, and we are insistent upon having the patient, the nurse and the doctors wear masks when these large open wounds are exposed.

Splinting of the extremities when the burn is near a joint helps to keep the limb at rest and thus favors the healing process. Grafting of skin is begun as soon as the condition of the patient and the appearance of the granulating areas will allow. While the very extensive use of plasma transfusions has unquestionably been a large factor in reduction of our mortality, I cannot help but feel that this simple method of caring for the burned areas has definitely lowered our incidence of infection and therefore materially improved our results.

Dr. Callahan is to be congratulated on his efforts in simplifying the dressing of a burn, but having had no experience with it myself I am, of course, unable to criticize it further.

Dr. Frank J. Jirka, Chicago; I wish at this time to congratulate Dr. Callahan on his timely and what I consider important paper. Dr. Callahan made a statement that burns are of importance because they have first place in the casualty lists of war time and fourth in peacetime. Burns to us have always been a sort of bete noir. We do not know exactly how to handle them. We used to make a diagnosis of first, second, third degree burns but we did not know how far that third degree burn went. Relative to the pathology, I merely reiterate the statement that Mason and Koch have made, that burns are wide open infected areas. There are many complications of burns and we must anticipate them. The end results depend on the therapy.

Considering these factors there have been many attempts to improve the treatment of burns and to find something that will be a little better than someone else had. We have run the gamut on the treatment of burns from carron oil to open air treatment. I agree with Dr. Miller that many times the open air treatment is good. Now we are down to cod liver oil and sulfanilamide ointment. Back in 1935 the late Dr. Bernard Fantus showed me an article written by Dr. Steele in the London Lancet on the treatment of burns with cod liver oil.

After reading the article he asked me to try that form of treatment but stated that there might be some difficulty in getting crude cod liver oil.

Having treated many burn cases by merely applying the crude cod liver oil on gauze, I was imprressed with the simplicity of its application. There was much relief from pain and a lessening of scar formation.

The only objectionable aspect of the treatment was the smell of the crude cod liver oil. That now has been eliminated in the use of the cod liver oil ointment. I believe, therefore, with my experience in the use of crude cod liver oil and later cod liver oil ointment, that the ointment has its place in the therapy of burns due especially to its simplicity of its application, a lessening of the pain, less severe scaring and quicker healing.

THE DOCTOR AND THE PROBLEM CHILD

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The psychiatry of living human relationships, or dynamic psychiatry, has been practiced by physicians even while the medical colleges were content merely to describe insanity and neurotic symptoms. The psychiatry taught was then an arid and static business of pigeon-holing or delineating the extremes of psychosis or neurosis. Psychiatry in practice is actually the art of human relationships as it effects unhappy and emotionally disturbed people. With the advent of dynamic psychiatry, the theory of this art has caught up with the practice. This discussion will concern itself chiefly with the why and wherefore of what we consider to be the best psychiatric practices of general medicine, especially as they relate to the handling of problem children. We do not presume to say what shall or shall not be done in such practice.

The problem child — and how he and his parents might be dealt with — has particularly concerned the medical profession as a whole. For one thing, the family has been a little more prone to bring problems of the child to a family doctor than those of its adults. Indeed, the role of the doctor as a family counsellor in such matters is firmly established. Then too, the practitioner is likely to find the problem child much more refreshing to deal with than the

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adult neurotic. However, the problem parents who may be seen with the disturbed child also presents their difficulties. But it is generally true that it is easier to bring about some change in the mobile, if disturbed child, and to manipulate his environment than it is to change the disturbed adult and his surroundings.

Among problem children we list the feebleminded, who nearly always create some emotional problems in their parents. With years of experience in the handling of the feebleminded child and his family, many practitioners have learned that the parents who bring very retarded children to them, are rarely if ever really unaware of the child's retardation. This does not mean that they can immediately admit this to themselves; but some sort of awareness of the problem usually exists. The practitioner has thus come to learn that his prime function in such situations is not to make the parents intellectually aware of this fact. He has learned that what he must deal with is the emotional disturbance of the parents over the fact that they conceived and have a defective child, who cannot match the capacity of others, and who in no way can live up to their own expectations. The attitude of the public to the feebleminded increases the blow to the self-esteem of the parents. When this emotional disturbance is effectively dealt with the parents are able to accept the facts. The general practitioner has not always been able to verbalize this basic tenet in the handling of the parents of extremely retarded children, but if he has had experience in such matters he has usually proceeded on this assumption.

This, of course, does not mean that it is always possible to reassure parents in the visit or visits which are available for the achievement of this goal. Many parents of such children are finally referred to psychiatrists or child guidance clinics after repeated interviews with one or more doctors during which they have emotionally, and therefore intellectually resisted the acceptance of the facts. In such cases, the psychiatrist or clinic continues the process of reassurance. As is always the case with true reassurance, it consists in giving the parents or patient some relief from their anxiety, tension, or hostility by accepting the expression of their feelings with calmness, without retaliation, and with continued interest. As the feelings of the parents are accepted they are directed against the doctor. But who is a better listener than that doctor who by personality and training has acquired this interest in his patients' problems? Certainly, reassurance does not come about simply with artificial encouragement. Indeed, what experienced practitioner dares speak words of encouragement which are not based on the real facts of the situation or the real capacities of the patients?

Long experience with these cases also has led doctors to raise the question of heredity and transmission of defects with the parents, even when they do not bring it up, in order to relieve the family concerning such matters, when it is possible to do so.

By the same token, the practitioner has learned that the question of whether the defective child should be committed to an institution is a subsidiary one and not the main issue. The disturbed parents are obviously not prepared for such proposals while they are acutely upset and even denying the facts of the case. When the defective child is well trained and not a behavior problem (and such children are capable of acquiring most of the social inhibitions) and when the parents are not disturbed over the child's shortcomings and their own unfulfilled expectations, there is little point in urging institutionalization. Also, the new policy of the Illinois institutions has been to recommend that these children remain in the community.

If the time to mention institutionalization has arrived, the doctor can only tell the parents what the possible advantages which might be gained are; then leave it to the parents to make their own decisions. This is a procedure he has learned for all proposals or suggestions. For most practitioners have realized that when the patient or any other individual can maintain freedom of choice, his independence or resentments need not interfere with his ability to make a decision on the basis of the real issues involved. In such a case he remains a grateful patient or parent, even if he cannot accept the suggestion which the doctor has offered. Nor is the patient's capacity for acceptance of a plan increased by any form of duress or anxiety on the therapist's part that the proposal be accepted.

The dull child, who while not distinctly retarded, still has limitations in general ability as compared to the average child, may also be a problem. In this type of case the psychiatrist likes to have a psychological rating to help him out, though, in the particular case, everyone who has seen the child may have sensed some limitation in intelligence. This child may be difficult to distinguish from the very immature and infantile child who on tests *does* show at least average intelligence. These children usually have difficulty in getting their school work. But here again, the parents may be concerned because they expect results in school and elsewhere, far beyond the youngster's capacities. In this situation too, the disappointments that the child does not fulfill these expectations or cannot achieve the ambitions which belong to the parents, may stand in the way of their acceptance of the child's limitations.

How often has the general practitioner seen an extremely fearful and very inhibited child trail in the office after a parent, only to find that the parent is complaining of the child's aggressiveness and rebelliousness, be it ever so faint. If some such very mild aggressiveness, restlessness or sullenness is not complained about, the mother may be bringing such a child to the doctor because she feels that he is weak, puny, and ill, and by implication, in need of further dependence on and sheltering by her. Yet, the doctor who understands and knows the normally aggressive and happy child will realize the fearful child is an unhappy and disturbed child not because of any rebelliousness, but despite it. He has perhaps also learned that when such parents who complain about their inhibited child's independent acts or mild defiance, are told that they may safely permit this behavior, little is accomplished. He finds that in such cases the parents' fear of their child's annoyances and their anger at, or resistance to his efforts at independence are so much a part of the personality of the parents as to yield little, if at all, to advice or reassurance. It is true that if the mother, for example, does have some capacity for giving her child some independence, comment about her restraining ways may occasionally produce enough guilty feelings so that she will relax in her restrictions and demands for dependence. Or, some comment about a child's need for some freedom may make the mother so angry with the doctor that, although she does not return, she gains some relief from her hostile tensions and can be more relaxed and freer with her child. With this type of parent, it may sometimes seem that the suggestion has brought some change until one has a chance to scrutinize the situation more carefully. One may then discover that while the parent may have relented in her pressure on the child in the matter about which the doctor made his suggestions, she has become all the more inhibiting and insistent in other spheres. But fearful, dependent, and inhibited as this type of mother or father may be, if they can express their anxieties about their children and themselves and eventually their annoyances, over a sufficient period of time they eventually can be benefited by their relationship with the doctor. One day they may come into the office and even tell the doctor quite directly that they are angry with him over something. The therapist will sense that real progress has taken place in this "timid soul."

This change is brought about by the "talking out" which the parent does, during which his feelings also come into play. If the doctor can accept the feelings of the patient calmly and without anger, whatever the emotions expressed be, the patient is encouraged to express more and more of his feelings. Through this process or emotional relationship, changes in the patient's emotional makeup are brought about. However, everyone knows that this is usually a long drawn out process and often for this reason, among others, the parents are referred to a psychiatrist or psychiatric clinic.

The doctor frequently encounters the parent who is concerned about his child's sexual behavior, which is usually masturbation. It thus becomes the physician's task to deal again with concerns of the parent about behavior which is essentially normal. Of course, excessive masturbation in the young child usually arises when the child is very anxious and insecure and has found this way only of allaying some of his discomforts. But when the masturbation is occasional, one is dealing with essentially a natural phenomenon springing from the urges of the child, and the chief effort must then be made with the parent who is concerned about it. As our culture has become more rational in matters of sex, parents, while naturally still dis-

couraging masturbation as an aspect of sexual development which may interfere with the higher, heterosexual level of integration, are not so likely to become concerned about this behavior.

However, the child may be brought to the doctor because this behavior has stirred some similar conflict in the parent or because the parent wishes to gain sanction for further punishment of the child who masturbates. In the latter case, the child is usually being punished not only because this behavior annoys the parent, but because many other actions of the child, which may be defiant and provoking, are producing tensions of frustration in father or mother.

Naturally, if the parent is very disturbed about the masturbation his method of discouraging this behavior will be based on his anxiety rather than on methods which will bring about the inhibitions with the least frustration and anxiety to his child. Here, too, while specific instructions may appear to be accepted they will not solve the parent's problems or end his anxieties. So, the mother who follows strictly the "cook-book" method of bringing up her child because she is afraid of her own natural impulses (including her fears for and annoyance with her child) still is unable to gain relief by this method.

In these cases, too, the doctor has learned that it is invaluable to give the anxious parent a chance to talk about his feelings, either spontaneously or with encouragement. Often this parent will tell you how he was dealt with by his parents in similar situations. The doctor then has some clue as to what the concerns of the parent are and how they arose. The parent who himself was dealt with in a very frustrating manner in the process of training with regard to masturbation, may himself deal with his child in the same fashion. He will do this because he now feels as his father did. Or he may go to the other extreme and be over-indulgent because he sympathizes so much with the child who now feels the way he once did as a youth. When some measure of real relief is obtained by the parent in his relationship with the doctor through his opportunity to express his fears for and annoyances with his child, that parent can proceed to train his child in a less anxious, less punitive, and more consistent way. His manner of training will be determined by methods which are natural for his personality. Then the inhibitions which are established in the child will not be too great. When the child becomes an adult, *acceptable* sexual expression will not be impossible. The control will have come into being without too much upset and pain to the child.

Another set of inhibitions or controls which the parent often becomes concerned about are bowel and bladder training. The practitioner is often called upon to help in situations in which involuntary bowel and bladder control were never established (although the child is older than three) or where they no longer operate even though once established. Chronic constipation of psychogenic origin, which the doctor sometimes finds, may be an example of over-control. A parent who is anxious about such matters may start toilet training at the age of six or eight months instead of at about eighteen months. The child may be given no freedom or leeway during the process. Over-control may be so extreme that the child may, without realizing it, respond with chronic constipation as the only way of not conforming or being defiant.

Far more common is enuresis, which may also develop when the child unknowingly, but definitely, resists this form of toilet training either as a reaction to overstrictness and too much interference (which the organism does not easily tolerate) or because of the inconsistent firmness in training. However, having started as a method whereby the organism may show its independence to undue interference, it may become a way of showing not only independence but unconscious defiance. It may also be a means whereby the child gains some indirect sexual satisfaction, since the passage of the stream through the urethra may be not only relieving and pleasurable, but specifically stimulating to the genitals. Enuresis may also lend itself to or be part of the expression of fear or anxiety, since we know that the experimental animal who shows fear, urinates, among other acts. The various satisfactions or expressions which this one symptom, enuresis, serves, suggests how difficult the cure of enuresis may be even for psychiatrists. But it is not at all unusual for any one emotional symptom to express many kinds of impulse — and conflict.

As in the case of all symptoms, what must be treated is the personality having the enuresis. Of course, if some child is punished severely and often enough, for wetting, he may give up the enuresis because of pain associated. But the disturbed person manifesting the enuresis, as the doctor knows, has not been cured. Occasionally the practitioner suggests the separation of children who sleep together and finds that this is enough to terminate the nocturnal enuresis of one of them. Possibly in this case, any sexual satisfaction or hostile discharge connected with the close contact during wetting, is reduced. As is so common, some relief is usually given to the parent if the practitioner shows, by his way of acting and feeling, that this symptom is not so terrible and so shameful. Sometimes this alone breaks the vicious circle and brings some improvement. At times the symptom disappears and one is at a loss for the reason. Perhaps on those occasions the child has achieved certain freedoms and securities. The doctor knows that in adolescence this outlet for defiance or other feelings often disappears as the growing youth gains greater emancipation from the home and has less need to be defiant. The expression of sexual feelings at this time, may also have something to do with it.

Another nervous symptom is stammering, which may develop when the child has been taught to speak by a strained, anxious, and confused mother who makes her child so tense, while he is learning speech, that the muscles involved are taut, jerky, and poorly coordinated. Early feeding disturbances affecting the oral satisfactions and therefore the mouth and throat coordination and relaxation, may also be a factor here. This symptom, too, the family physician knows, is a symptom which even the psychiatrist has difficulty in helping. Speech training is often used as a palliative. Nervous tics of all kind exist. Some seem to develop because the child has had so many of its avenues of aggression or of annoyance cut off that when frustrated it can only use the very disguised route of the nervous tic to discharge tension or anger.

Acute anxiety is one of the common nervous manifestations with which the practitioner deals. The emotionally disturbed child often fears his own death. It has been definitely established that these arise from his hostilities and the attendant death wishes. However, he becomes very guilty and fears his own death will occur in retaliation. The family doctor has long ago learned from Freud that when the child wishes the death of another he is only wishing that person away and that he does not understand the full implications of death. Phobias are defenses against such fears.

As in all matters of symptoms, the doctor knows that the extent of neurosis or emotional disturbance is not to be gauged by the absence or presence of certain symptoms. As soon as he left medical school, the general physician learned that the classical pictures of neurosis, like the classical descriptions of diseases, rarely occur in children. They are to be found a little more often in adults.

The doctor, who has always been in a good position to observe the interplay between members of the family, has understood, without verbalizing it, that emotional disturbances in children with or without any definite nervous symptoms develop as a result of the frustrations, insecurities, and inconsistencies of his emotional environment. They may have seen the disturbance develop over a long period of time while attending the family. They have thus come to realize that, having taken so long to develop, the situation is complicated and not easily changed. By the same token, they understand that if the attitudes of the parents, who supply the emotional milieu, are changed, the child is also changed in these situations. Similarly, in England it was observed in this war, that if the adults present at the time are calm, the normal child is not disturbed by the bombings even when they occur close by.

Behavior problems are also a way for the child to express his frustrations and the conflicts with himself and with his parents. Defiance of, or hostility toward parents, and then teachers and playmates may take many forms such as, fighting, stealing, refusal to cooperate, etc. Having its origin in the home, it may be inhibited there, but still find opportunity for expression elsewhere. This behavior occurs in response to the persistent depriving attitudes, and repeated annoyances or anxieties of the parents in certain situations which produce great frustration in the children, at such times.

If when the child feels thus markedly frustrated, he is given some outlet for his feelings in some form of behavior such as fighting, provocative acts, or in some behavior of avoidance such as refusal to cooperate, the child develops behavior problems. If the frustrated child has no such outlets he can only develop anxieties, enuresis, night terrors, and other nervous symptoms, or more infantile ways of responding, as a method of relieving his frustrations and gaining further satisfactions. Every doctor knows that the consistently frustrated child usually manifests a combination of these: some nervous symptoms with behavior disturbance also. Just which form of expression, whether behavior or symptoms, or which combinations develop as an expression of the frustrations, usually depends on the kind of personalities which the parents of these children have. The unhappy child of very inhibited parents can rarely permit himself defiant behavior or expressions of annoyance as a way of discharging his frustrations. The child whose unhappiness is expressed in behavior disturbance and temper display is usually the child of parents who themselves are able to express anger or defiant behavior as an outlet for their own emotional disturbances.

Certainly, behavior problems in children generate even more annoyance in these parents, who often have many conflicts and much guilt about expressing further anger toward their children over this behavior.

We thus know that the parents of the child with behavior problems often gain the greatest relief when the doctor encourages and can accept the complaints of these parents about their offspring and even their anger with these children over their unhappiness and disappointments with them, without himself getting upset or encouraging the parents to be more punitive. Indeed the chief job of the psychotherapist is usually to relieve these patients of annoyances which they feel inhibited about expressing, but which they eventually direct against the doctor himself.

It is thus seen that the child who is a behavior problem, like the child with purely nervous symptoms, is an unhappy and disturbed child who can be helped best, not by punishment (which may inhibit the undesirable behavior), but by relieving the anger and frustrations of the parents wherever possible, thus eventually relieving the child's disturbances. Of course, an attempt can also be made, in certain cases, at directly helping the child with his frustration.

We have mentioned how often it was possible for the general practitioner, by helping the parents, to help in the entire situation, including the child and his problems, without the necessity of treating the child directly. When the doctor does interview the child also, to evaluate the situation, he has learned the value of complete privacy in speaking with the child and the importance of respecting his confidences. He has also learned to realize that seeing the child's point of view when he speaks to a child, does not prevent him from understanding the parent's point of view, when they are interviewed. Both have their validity. By being able to sympathize with both in their turn he is in the position to establish a working relationship with either the parent or the child. He thus also avoids the temptation of considering the behavior of either parents or children as an ethical question of right and wrong.

Delinquent children and youth who show persistent stealing or frequent recurrence of some other anti-social behavior are usually not brought to the private practitioner. In the delinquent, training against or inhibition of certain anti-social acts, which otherwise ordinarily develop, has not succeeded. The warmth and the consistent firmness necessary for such training to take place, has not been supplied. We wish to stress the importance of warmth as a necessity although the doctor knows that a definite amount of consistent affection is needed in order for training to occur. The child will only give up the satisfactions of some form of uncontrolled or undesirable behavior when he is doing it for a parent who supplies a definite amount of security in return for the self denial. Often extreme economic insecurity and other frustrations help produce parents so harrassed and unhappy that they are unable to supply affection and care to their children. The practitioner rightly leaves these problems for the social workers, court, and other social agencies who arrange environmental manipulations and other treatments.

So-called psychosomatic problems in children such as asthma, skin rashes etc., of psychogenic, orgin are probably seen more often by general practitioner than psychiatrist. Undoubtedly every doctor has had a chance to see such symptoms wax and wane as the patients become tensed or relaxed, very disturbed or relatively happy.

Adolescent youth are very frequently seen by practitioners. They are often brought to the doctor either because of masturbation, defiant behavior, or marked increase in the day dreaming and withdrawal. The family doctor has learned that this is a very difficult period for an individual who is growing up rapidly but not yet fully grown, who attempts to be independent when he is not quite able to achieve this goal economically and emotionally, and who wishes to compete with adults but yet wishes to be as dependent as a child at times. The adolescent period is frequently one of great tension for both parents and their child. With the increase in conflicts, the previous tendencies of the child to become inhibited or defiant (to mention the two extremes) are enhanced.

The doctor has learned not to increase the guilt of the adolescent by questioning him about his masturbation (if this is one of the problems), but to discuss sex with him without quizzing, pointing out that he knows that youth do masturbate and worry about it and that their parents are very disturbed about such behavior. When the natural basis of this sex behavior is pointed out the youth is given further relief from his great guilt which always exists in the disturbed youth, over this behavior. The adolescent is further encouraged when he is told that this sexual behavior is a stage in growing up and that it will be possible for him to achieve an acceptable, heterosexual development eventually. The physician has learned that the emotional tensions of this period are only relieved by gentle and sympathetic handling.

The doctor is often surprised when a boy about whom a history of much defiance was given and who is initially very defiant with the doctor, begins to cry before the interview is over, despite gentle handling. However, the general practitioner has learned to realize that the defiant adolescent with a strong conscience, may be very rebellious as a defense against many passive feelings which he can no longer tolerate because they make him feel weak and like a small child. It is for this reason that a youth who is initially defiant may end up by crying.

Other youth whose conscience is less well developed, are very defiant because there is nobody in their environment whom they have learned to trust as consistent, friendly adults. It is rare that gentle and friendly handling, which avoids responding to their defiance, does not bring some results with these youth.

Psychosis is not so unusual among adolescents, and then the doctor has a difficult job of dealing with the marked emotional reactions of the parents to this fact.

Today it is especially important that our children be secure. The morale of the family and the members of the family in the Army is partially dependent on the security of the children in the home. In England, during this war, it was discovered that the disturbed children were the ones who became most upset when evacuated. It was necessary to wean these emotionally disturbed children from their parents, very slowly.

It is not unusual for the general success and ability of a general practitioner to be largely based on his capacity as a psychotherapist, who in his human relationships with his patients, is able to deal with many difficult situations in a fashion relieving to all concerned.

THE THIRD STAGE OF LABOR

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No phase of obstetric activity excites as little interest as the third stage of labor. Coming as a sort of anti-climax or epilogue to the more dramatic stages of labor the third stage is often over-looked, disregarded or neglected. It is taken for granted and little importance is attached to its proper management.

Yet from practical experience, as well as from mortality statistics, it is evident that in accidents of labor, complications arising or culminating in the third stage, take a far greater toll than in the other stages. Accurate information includ-

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ing the country as a whole is not available, but from the published statistics it is obvious that hemorrhage, trauma, and shock (all complications of third stage origin) account for 20% of maternal deaths from child birth, and most of these during or after child birth. It is also evident that in the states with lowest maternal mortality rates, the percentage of deaths from hemorrhage, trauma and shock is less.

If one reviews the literature of modern obstetrics, beginning with text books published one hundred years ago and continuing to the present, including modern general texts, as well as articles dealing with the third stage, a definite trend is evident. This trend is to minimize the third stage as a true stage of labor and to accentuate the thought of placental separation and removal. Modern management of labor is greatly responsible for this trend.

Without being too detailed let us review briefly the normal course of the third stage, without any manipulation, interference, or intervention. Following the spontaneous delivery of the child, there is a space of time in which the activity of labor ceases. The mother, partly from the efforts of expulsion of the child and partly from the hyper-oxidation, lies in a state of inactivity bordering on a coma. During this time the umbilical cord is seen to pulsate, and there is little or no bleeding from the birth canal. Following the last expulsive contraction the uterus gradually relaxes to a semiflaccid state, elongates in the vertical axis, and is flattened in its antero prosterior diameter. This latent period of inactivity is physiological and the length of time varies with the individual.

Usually before further evidence of activity is manifest, the cord stops pulsating. As time goes on the contour of the abdomen changes as the top of the uterus reaches a higher level, a fullness may be noted above the symphysis, and concurrently or later there is a gush of blood from the vagina with evident lengthening of the umbibial cord.

Soon it becomes evident that the uterus is intermittently contracting and relaxing with increasing expulsive effort, and if the patient is in a somewhat inclined position the placenta will gravitate from the birth canal, accompanied by a moderate amount of blood. This is a phenomenon we modern obstetricians seldom see.

Following this stage, just described, the uterus should and usually does assume a contractile state of longer duration, interspersed with short periods of partial relaxation, to be again followed by contractile stages with the expulsion of blood and clots.

In nature and without interference this third stage of labor should proceed with safety and should not be attended with any high incidence of shock, trauma or hemorrhage. It is by rendering the third stage unphysiological that most of the trouble is sustained.

In our modern process of medical education we place great emphasis on proper prenatal care. We rigorously teach the mechanism of labor. We investigate to the greatest known degree the diseases of pregnancy. Yet — we are inclined to treat lightly this most dangerous of all periods of labor — the third stage.

Let us see where in we may be treading on dangerous ground when we deal lightly with the third stage. In the first place by our modern methods of amnesia, analgesia, and anaesthesia we tend to make the third stage unphysiological. Following the birth of the child the patient is less responsive. It takes longer for her to marshal her normal powers of response. The uterus is flaccid and will not respond to stimulation quickly. Hence any attempt to separate or remove the placenta would be expected to result in increased bleeding, without the normal hemostatic effect of the contractile uterus. Manipulation of the uterus by massage and squeezing to separate the placenta may result in partial detachment of the placenta with more bleeding. Polack, years ago, emphasized the opinion expressed by Ahlfeld that a completely attached placenta or a completely detached placenta was not in itself a source of bleeding; while a partially detached placenta *was* a source of bleeding, due to interference with the normal mechanism of the contractile uterus.

It has been indicated by some authorities that a long third stage following the separation of the placenta, predisposes to more bleeding during the third stage.

This may be the case, but the longer period is not associated with markedly increased blood loss and it is certainly not naturally unphysiological. Give the uterus a time to resume its

normal contractile properties before trying to separate or obtain the placenta.

It has become the customary practice of too many doing obstetrics to clamp or ligate the umbilical cord as soon as possible after birth occurs. This again is unphysiological. Until not so many years ago one of the tenets of the third stage was: "Wait until the cord has stopped pulsating." I have found lately that many of our graduates have never heard of such a thing. (Or if they ever did hear of it, they do not remember it.)

DeMarsh, and co-workers have recently shown the advantage of late clamping of the umbilical cord in so far as the infant is concerned. Their work is most convincing and deserves mention if only from the standpoint of infant welfare alone. It is a debatable question whether allowing the umbilical cord to cease pulsating facilitates the separation of the placenta. There is some evidence that it does. At any rate it does no harm and does increase the time before any manipulation for removal of the placenta should be attempted.

A most deplorable practice is that of massaging the uterus to get it to contract, or to cause the placenta to separate, immediately after the birth of the child or soon after the immediate ligation of the cord. This is another all too common custom and it may result in hemorrhage and shock, partial separation of the placenta, or in some cases inversion of the uterus. It is most fortunate that the placenta separates as soon as it does, or many more complications would ensue from unwarranted manipulation.

Unless untoward bleeding occurs it is far better to wait for clinical signs of separation than to hasten or artificially produce separation just for the sake of saving a few minutes of the physician's time. Pregnancy and labor, especially labor are time consuming processes. It is of little avail to wait patiently throughout a long and properly conducted labor and skillfully managed delivery to unnaturally hasten the termination of the third stage with the attendant hazards that may follow such a course.

Polack did also show that when failure of separation of the placenta occurred there was no need for immediate intervention. By waiting a long time if necessary, separation and normal expulsion would occur in almost every case. Too early intervention may result in hemorrhage, trauma and shock.

Following clinical signs of separation one should wait until the uterus is in a contractile state. Then and only then should moderate force be used to expell the placenta. The uterus should be grasped firmly and pressed to push out the placenta, at the same time holding it forward so that it will not be forced deeply into the pelvis, or cause the cervix to protrude through the entroitis. It is here to be emphatically repeated, that this procedure is only to facilitate the expulsion of the placenta and is not to hasten its separation. In most instances it would not be necessary to manipulate the uterus for the expression of the separated placenta, were it not for a combination of factors, namely: Some degree of anaesthesia delaying third stage contractions, and the conventional position of the patient in labor, so that the placenta will not leave the body after it passes out of the uterus.

(There seems to be a strange obsession on the part of any persons attending a delivery to give the uterus a little pressure or to massage it while waiting for the third stage to be completed. This is a most unwelcome service.)

The longer the clinical signs of separation are delayed, the more cautious one should be as to attempts to hasten removal of the placenta. There is no need for haste. Repeated attempts to produce separation may cause only partial separation, and hemorrhage. A little watchful waiting usually results in subsequent spontaneous separation.

A marked distinction between retained placenta and adherent placenta must be made. Not infrequently this difference is overlooked in dealing with cases in which the placenta has not been delivered. A retained placenta may require some manipulation or manual removal on occasion, but an adherent placenta is another matter. In adherent placenta a pathological relationship exists between the placenta and the uterine wall. The chorionic villi are embedded in the muscle bundles without benefit of interposed normal decidual tissue. Attempts at removal of such a placenta usually result in the severest of complications. If one discovers that adherent placenta is present, all attempts of manual removal should be stopped and special

preparation should be made at once to deal with this most extreme complication. Supporting measures for the patient should be carried out and hysterectomy resorted to.

Above all things it should be kept in mind that entrance of the uterine cavity through the vagina carries with it a high risk of infection, and any intra-uterine procedures for removal of the placenta may be associated with hemorrhage and shock. The shock may occur with great suddenness. It is best to be prepared for such complications when any intra-uterine manipulation for the removal of the placenta is contemplated.

The procedure of giving pituitary preparations, or ergot preparations during the third stage of labor is not one with which all agree. While it does hasten the contractility of the uterus, it may result in the retention of the placenta because of contraction of the lower segment about the internal os. It seems more logical to wait until separation takes place before giving an oecytoxic. Then the placenta may be expressed before the full effect of the drug is obtained.

A very logical procedure is to hold the uterus firmly, following the expulsion of the placenta, until the contractile effect of the drug is felt. The newer ergonovine preparations take effect in five to seven minutes when injected intra muscularly. By holding the uterus firmly and keeping it contracted during this interval the tendency toward bleeding is materially reduced. This is much more satisfactory than intermittant massaging and squeezing.

If the uterus then shows definite tendency to contract and the patient is not bleeding excessively it is better to allow the uterus to remain undisturbed save for occasional light palpation to note its size and tone. A post partem uterus does not stay tightly contraced constantly. It relaxes and contracts slowly to a moderate degree. In a patient who is not bleeding excessively, the practice of squeezing the uterus whenever it relaxes a little is not a good one. It is quite possible in a patient with a chronically subinvoluted uterus, to produce more bleeding by repeated squeezing, just as water may be squeezed out of a sponge.

It is something to think about; the management of the third stage of labor. We as physicians are constantly improving our methods. In this way, along with public education, we have constantly been lowering our maternal mortality rate. Having shown creditable improvement in what have been the largest factors in maternal mortality, we should cast about to see wherein further major improvements may be made. What greater opportunity is there than meticulous care in the management of the third stage of labor.

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DISCUSSION

Dr. John Joseph Gill, (Chicago): Since I am the one who originally persuaded the powers that be to create the Obstetric Section in the State Medical Society, I feel quite an interest in this department.

I would like to add a few things to this particular subject. One is relative to the bleeding which follows the third stage. It is not always especially due to the delivery of the placenta but frequently caused by tears in the cervix which have been neglected, and is part of the second stage instead of the third stage of labor.

Another thing which once in a great while will happen is the hourglass contraction which will cause a retained placenta. It is not very generally known just how to handle that situation when it does occur.

Those things occur once in a while and one should know more about them, — which I think the essayist might bring out in his closing discussion.

Dr. Richard Paddock, (St. Louis, Mo.) (Closing): I appreciate the remarks made by Dr. Fitzgerald and Dr. Gill. I think these men are entirely correct in calling those points to our attention.

The remarks of Dr. Fitzgerald are particularly timely, especially in view of the fact that we are using a great deal more plasma in the treatment of shock and hemorrhage, and especially after the third stage or during the third stage of labor. I believe it is well worth the investment in any hospital to have on hand an available supply of plasma in addition to the transfusion facilities that the hospital may afford.

The question of packing is also one that I think it is well to bring out at this time, for whenever one enters a uterus postpartum or whenever one finds it necessary to pack a uterus postpartum, the question of packing is one that should be carefully considered. As Dr. Fitzgerald says, if you have not packed the patient properly the first time and she bleeds through the pack, the chances are she will do the same thing again and more time and blood will be lost while attempting such a procedure.

Dr. Gill's remarks about lacerations, — tears, — of the cervix are indeed very opportune at this time

because we have to consider, in dealing with the third stage of labor, a little more than the removal of the placenta itself or its normal conduct, but we must be prepared for such emergencies as may arise as a result of lacerations.

In the paper when I spoke of removing a retained placenta, I had in mind the question of anomalies of the uterus, contraction of the cervix, and particularly hourglass contraction, because we have all had the experience of dealing with these hourglass contractions which I believe are due to anomalies of the uterus. They are not truly hourglass contractions, but are due to anomalies of the uterine wall which make the uterus appear to be in an hourglass contraction.

I have had that experience three times with one patient, the same patient, and I am inclined to believe from what I know of the patient that she has an anomaly of the development of the uterus which cannot be demonstrated at this time.

I wish to thank both the men who have discussed my paper for bringing out these timely points.

THE ETIOLOGY AND TREATMENT OF FUNCTIONAL UTERINE BLEEDING

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"Functional uterine bleeding" is a symptom, not a disease; nonetheless it is exceedingly important clinically, and I have therefore chosen it as a topic for discussion.

Because considerable confusion and some laxity have existed in the use of the term functional uterine bleeding it seemed worth while to scrutinize the records of patients with this diagnosis. Several years ago, therefore, I began a project in which records were kept of private and dispensary patients with a diagnosis of functional uterine bleeding. The cases were separated into two large groups: 1. those patients who were subjected to surgery on the Gynecological Service of Passavant Memorial Hospital, and 2. those non-operated patients who had a sufficient work-up and a long enough follow-up to warrant a definite impression as to the cause of their bleeding. As a result of these records, factors inducing functional uterine bleeding have been classified and certain impressions have been arrived at relative to therapeutic indications and values.

The classification is as follows:

FACTORS IN THE ETIOLOGY OF FUNCTIONAL UTERINE BLEEDING

- Extrinsic (abnormalities outside the physiological mechanism causing menstruation)
  - Mechanical
    - Uterine displacements
    - Ovarian prolapse
    - Pelvic congestion
      - Varices
      - Impaired ovarian circulation
  - Inflammatory
    - Acute pelvic infection
    - Residuals of pelvic infection
      - Adherent ovaries
      - Tubo-ovarian inflammatory masses
      - Pelvic adhesions
      - Adherent uterine displacements
  - Traumatic
    - Ovarian resection
    - Ovarian displacement
    - Impaired ovarian circulation
  - Systemic Disease
  - Endocrine
    - Disturbances of the thyroid gland
- Intrinsic (disturbed physiological mechanisms)
  - Ovarian
    - Persistent follicles
    - Defective corpus luteum
  - Pituitary dysfunction

The physiological mechanism precipitating normal uterine bleeding (menstruation) is hormonal in character. The pituitary gland, the ovaries, probably the thyroid, and perhaps the adrenals are involved in producing the cyclic changes which culminate in a necrosis of the endometrium and a discharge of blood from the uterus at approximately monthly periods between puberty and the climateric. Most women menstruate moderately for from three to six days at intervals of twenty-two to thirty-five days; intervals of less than three weeks and bleeding of more than seven days is considered abnormal. While the amount of blood lost is variable, few women during the menstrual period require daily more than four or five of the pads now marketed; a sudden discharge or gushing of considerable quantity of blood is not normal.

It seems logical that two intrinsic disturbances of the mechanism causing menstruation are most apt to occur which will make functional uterine bleeding: 1. Failure of the pituitary gland to bring about the proper sequence of

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events in a normal ovary so that its cycle is not completed, with consequent continued elaboration of estrogen, and 2. failure of the ovary to respond to normal gonadotropic stimulation, the follicular cycle again not progressing through normal phases. In both instances either an unruptured follicle continues to produce estrogenic substance in varying amounts, or a defective corpus luteum fails to bring about normal shedding of the endometrium.

Functional uterine bleeding, originating from disturbances within the physiological mechanism which makes normal menstruation, tends to develop at the two extremes of sexual life, — adolescence and the menopause. It is at these two periods, first at the establishment, secondly at the cessation of ovarian activity that abnormalities of the hormonal rhythm tend to occur most often. It is unfortunate that in these cases quantative hormonal assays are too uncertain to enable us actually to determine whether ovarian or pituitary dysfunction is causing bleeding.

Functional uterine bleeding asising from mechanical, inflammatory, and endocrine disturbances outside of the physiological mechanisms of normal ovarian function may occur at any age but are seen most frequently in women in the third and fourth decades of life when sexual activity is greatest. During these years the machinery of gonadal activity is running smoothly and extrinsic influences are required to disrupt it. The basic disturbances in mechanical, inflammatory, and traumatic lesions are essentially the same: there is a failure of the ovary to go through normal cycles because its function has been disturbed by impaired circulation or injury.

So-called "Swiss cheese" hypertrophy of the endometrium is sometimes observed in cases of functional uterine bleeding. This hypertrophy is not, however, pathognomonic of functional flow, for it has been reported as being discovered in fetal endometria, in the endometria of women with normal menstrual cycles, and in non-bleeding post-menopausal uteri. That such a state of the endometrium is not necessarily a concomitant of functional bleeding is evidenced by the fact that of the 50 cases of intrinsic bleeding in this series, only 18 had so-called hyperplasia of the endometrium. Endometrial hyperplasia was noted in 46 of a group of 192 women whose functional uterine bleeding was due to extrinsic factors.

Mechanical factors which disturb ovarian physiology and produce excessive flow were the commonest cause for functional uterine bleeding among all of the women who were observed in this study. (Table I.) In the age group between 20 and 42 the proponderance of mechanical causes for functional uterine bleeding was more marked than in the group as a whole. The most frequently discovered lesions were those in which the ovaries had been dragged into the deep pelvis by a retrodisplaced uterus. These ovaries became edematous, large, cystic, with pallid tunica albuginea. The ovarian and broad ligament veins became tortuous, dilated, and varicosed in a manner comparable to the formation of varicocele in men. It was not uncommon to find the suspensary ligament of the ovary a mass of medusa-like pencil-size veins, the whole ligament several centimeters in diameter, purplish red, edematous, and congested. Such a condition must inevitably result in impairment of ovarian circulation and ovarian dysfunction. Uterine descensus and abnormal relaxations of the uterine supports dislocated the ovaries in the same fashion as did retrodisplacements and were likewise sometimes associated with functional uterine bleeding.

TABLE I

Etiologic Factors in 242 Cases of Functional Uterine Bleeding

Operated Cases		114
Extrinsic Factors		105
Mechanical	54	
Inflammatory	22	
Traumatic	20	
Systemic	0	
Endocrine	9	
Intrinsic Factors		9
Non-Operated Cases		128
Extrinsic Factors		87
Mechanical	23	
Inflammatory	11	
Traumatic	16	
Systemic	7	
Endocrine	30	
Intrinsic Factors		41

Pelvic infection (both gonorrheal and non-specific) was second only to mechanical disturbances among the extrinsic causes of functional uterine bleeding among the operated cases. It is common to see moderate prolonged flow

during an acute inflammation, induced by pelvic congestion and an acute oophoritis associated with a pelvic peritonitis. After the inflammatory processes have abated, adhesions entangle the ovaries. The latter fall behind the broad ligaments and become adherent. Cicatrical changes pucker the ovarian tissues and thicken the tunica albuginea. The uterus, sagging backward because of congestion at the time of the acute infection, becomes fixed in retrodisplacement and the ovaries prolapse with it. Inflammatory cysts or areas of induration often form involving not only the ovaries but also the uterine tubes. As a result of these changes ovarian function is impaired and the follicular cycles are disrupted.

Traumatism may change ovarian physiology so that functional bleeding results. Scar formation following ovarian resection may make it impossible for the ovarian cycle to progress in normal fashion. Displacement of the ovaries particularly after salpingectomy or improperly performed suspension operations is a common cause of ovarian dysfunction. Likewise, damage to ovarian circulation through constriction of the suspensary ligament of the ovary is a prelude to cystically diseased ovaries.

Systemic diseases will sometimes produce uterine bleeding without evidence of an organic lesion in the uterus or ovaries. Although this flow is not truly functional, it is included here because of the frequency with which it is confused with true functional bleeding. Anemias, especially the type in which there is an abnormal decrease in the platelet count (thrombocytopenic purpura), may be associated with severe hemorrhage. Hypochromic microcytic anemia, often encountered in women who have been suffering from metromenorrhagias, is more often the result of the hemorrhage than an etiological factor causing the bleeding. It is essential that the attending physician be ever mindful of the possibility of an underlying hidden cause for abnormal uterine flow which at first glance appears of "functional etiology."

Endocrine factors of other than pituitary-ovarian origin which produce excessive uterine flow, should, perhaps, be classified with the intrinsic causes of functional uterine bleeding. However, as yet, the relationship of the endocrine glands to normal ovarian function is not sufficiently understood to warrant such a step. The thyroid-ovarian interrelation, evidence of which is often seen clinically, is probably not a direct association. It has been suggested by Hamblen and his co-workers that the hypometabolism of thyroid failure results in a "slowing down" of ovarian activity. It is logical to assume that, with the decrease in metabolic activity in the body as a whole which is a concomitant of thyroid deficiency, there should be a decrease in the activity of the gonads. The gonads, however, appear to have a higher degree of sensitivity to this metabolic disturbance than does the rest of the body, for many of these women evidence no symptom of lowered metabolism other than their functional menorrhagia.

In the group of women in the series reported herewith who were under forty years of age and who were not operated upon, the discovery of a lowered basal metabolic rate and a high blood cholesterol level was common. The efficacy of thyroid substance in treating this group was most gratifying; it must be administered under basal metabolic rate control, to the limit of the patient's tolerance, and must be given continuously for long periods of time. Some of these patients will require thyroid substance throughout their lives.

Treatment. After reviewing the many causes for functional uterine bleeding as outlined above, it is evident that general statements cannot be made regarding treatment. When bleeding is due to disturbances of function resulting from extrinsic factors, treatment is directed toward correction of the underlying etiologic factor responsible for the flow. When there is an intrinsic cause for the flow an attempt should be made to regulate the disturbed mechanism responsible for the bleeding; occasionally, however, in both instances, the age or the condition of the patient warrants other measures.

Treatment of functional uterine bleeding due to mechanical factors necessitates individualization. In a young woman an attempt should be made to replace the uterus and support it with a pessary in an effort to prove that the prolapsed ovaries associated with the retrodisplacement were the cause of the bleeding. Unfortunately, frequently, normal ovarian function returns too slowly to make such a therapeutic test of much value. While the dictum that symptomless ret-

rodisplacements should be left alone is a wise one, nevertheless, when cystic ovaries and uterine bleeding are associated with a heavy retrodisplaced uterus, operative replacement of the uterus and elevation of the ovaries to a normal position is warranted. At the time of the replacement operation it is imperative that every means be taken to protect the ovarian circulation and to return the ovaries to the ovarian fossae; undue snuggness of tissues should be avoided; proper support of the uterus by suture of the uterosacral ligaments, advancement of the bladder, combined with the Baldy-Webster shortening of the round ligaments, as advocated by Arthur H. Curtis, should be done. Shortening of the utero-ovarian ligaments may also be necessary to give the ovaries adequate support. In older women, or where childbearing is not a factor, removal of the supravaginal portion of the uterus is often the wisest course.

Uterine descensus of considerable degree usually occurs in older women and produces other symptoms in addition to bleeding. Bearing down and dragging discomfort with symptoms referable to an associated cystocele and rectocele often accompany downward displacement of the uterus. In such instances hysterectomy at the time of the vaginal procedure is worthy of consideration.

Good judgment suggests that non-surgical therapy, even if effective when administered month after month, is unlikely to result in other than temporary relief of bleeding caused by ovaries deranged by scarring and adhesions. As a general rule these patients have been sterilized by an infection. Bleeding and usually some pain are their chief complaints. Endocrine therapy may improve their condition temporarily but surgery is usually the best recourse. Removal of a bleeding uterus (whose ambition to harbor a gestation can never be realized), freeing of adhesions and entangled ovaries, and excision of unhealthy tissue, is at times a more conservative course than prolonged attempts to control the flow by less heroic measures. At the time of the operation "radical conservatism" should not be indulged in. It is to be remembered that the bleeding comes from the uterus and that ovarian function which has been impaired by old inflammation can rarely be improved by surgical procedures upon the ovary.

It is essential that mention be made of the distressing frequency with which patients are seen who complain of uterine bleeding and whose history elicits the fact that in the past a bilateral salpingectomy had been performed because of tubal disease and the uterus left in situ. Ovarian disease incident to the surgery or to the old inflammation subsequently caused functional uterine bleeding. It would have been far better to have performed a supravaginal hysterectomy or defundation at the time of the tubal operation.

The treatment of ovarian traumatism is preventative. At the time of pelvic surgery every effort should be made to avoid distortion of the ovaries or impairment of their circulation. Resection of the ovary, while occasionally required, is an unhappy necessity which should be resorted to with reluctance.

In the adolescent and the woman of childbearing years it is imperative that an attempt be made to reestablish a normal physiological mechanism in the ovary. Theoretically this should be possible through the administration of pituitary substance. Unfortunately, the present available preparations of anterior pituitary and anterior pituitary-like substances have been, in my hands, failures in the treatment of functional uterine bleeding. It was hoped that extracts of the serum of pregnant mares would be more effective than the previously used chorionic gonadotropins and whole pituitary products. This hope has not been realized. Hamblen and his co-workers have reported the value of the combined chorionic and equinine gonadotropins in the treatment of functional metromenorrhagias. I have been unable to duplicate their success.

The use of the ovarian hormones estrogen and progesterone in the treatment of functional uterine bleeding is basically unsound. Continued abnormal secretion of estrogens in itself is a cause for excessive flow. The administration of estrogens may inhibit the pituitary so that there will be a temporary decrease in abnormal bleeding. Once the estrogen has been withdrawn, however, the flow recurs more profusely then ever. Progesterone, in dosages up to 40 mgm. weekly, has failed to inhibit functional bleeding when given to some of the patients in the series reported herewith. Neither estrogens nor progesterone affect the ovary nor the dys-

function causing the trouble except through whatever pituitary inhibition they may cause.

Thyroid substance is of great value as a therapeutic agent in these cases even in the absence of a demonstrable hypothyroidism. Daily doses given with caution under basal metabolic rate control and with due regard for the development of evidences of overdosage, will often decrease functional menorrhagia. Although the modus operandi is not fully understood, apparently the stimulating effect of thyroid substance upon the cellular metabolism of the gonads is comparable to that upon body metabolism as a whole.

Androgenic therapy is the most worthwhile non-surgical agent now available for the treatment of functional uterine bleeding arising from intrinsic causes in younger women. As a result of effective pituitary inhibition following the administration of male sex hormone the ovarian cycle is brought to a halt, the ovarian activity temporarily cases, and bleeding stops. The advantages of male sex hormones are its effectiveness, its safety when properly administered, the preservation of whatever reproductive ability the woman possesses, and the avoidance of operative procedures. The disadvantage is the danger of producing temporary masculinizing changes in women when testosterone propionate is improperly administered. These dangers have unfortunately been overemphasized. It should not be given to women with androgenic characteristics and the dosage should be restricted to 25 mgm. every other day for a total of not more than 350 mgm. 400 to 500 mgm. is the masculinizing level for most women. After using testosterone propionate in many cases of functional uterine bleeding during the past five years, in adherence to the above mentioned precautions, I have seen but one incident where masculinizing changes caused any concern, and in that instance the changes disappeared shortly after cessation of treatment. When ovarian activity begins following cessation of the administration of male sex hormones, frequently normal menstrual cycles become reestablished. This is true, however, in only some of the patients treated. It is preferable therefore to consider androgenic therapy as inhibitory rather than curative. Testosterone propionate can, neverthless, be given in courses of 300 mgm. each several times yearly for many years without ill effect. Among my patients are three women who have received androgenic therapy for five years without any evidence of undesirable reaction. One of them has received a total dosage of 7575 mgm. during five years of treatment.

Occasional reports of the value of snake venom in stopping metromenorrhagia have appeared in the literature. Insulin has been considered of value. Styptics and oxytoxics are widely used. None of these agents correct the cause of the flow and few of them relieve it other than momentarily.

Liver therapy, high protein simple diets, rest, sunshine, and other supportive measures are of unquestioned value, not specifically but because of the constitutional improvement they produce. In rare instances blood transfusion, made necessary by a profound anemia, will be followed by cessation of abnormal flow.

Intrauterine radium applications in adequate dosage stops functional uterine bleeding. It achieves this effect by producing ovarian and endometrial atrophy. Its use, as a general rule, should be restricted to women of the menopausal age group. The intrauterine application of radium in women under 42, if given in small doses as often recommended, may make permanently malfunctioning ovaries, produce partial menopause and be followed months later by an atypical uterine flow as annoying as the original bleeding.

Intrauterine radium is the simplest and most satisfactory method of treating excessive bleeding of a functional type in women over 43 years of age. It should always be preceded by a diagnostic curettage and a painstaking examination under anesthesia to rule out organic causes for the flow. 1800 milligram hours is an average adequate dosage.

The use of x-ray irradiation either for the purpose of inhibiting ovarian activity or for alleged stimulating effects on the hypophysis and ovaries is of questionable merit. Intrauterine radium radiation of the ovaries is more effective than x-ray if ovarian atrophy is desired. That the x-ray is capable of producing "stimulating" effects upon the hypophysis and ovaries is still subject to question. Like radium therapy, x-ray treatments should be preceded by a diagnostic curettage.

Curettage is not a treatment for functional uterine bleeding. The flow will stop following curettage for several weeks, but it will then commence again. It is imperative, however, that women in the older age groups be curetted prior to instituting any type of treatment for their bleeding. This should be done to rule out hidden intrauterine tumors. Repeated meticulous examinations searching for missed intra-abdominal and systemic disorders should be made repeatedly in all groups of women who suffer from functional uterine bleeding.

CONCLUSIONS

Two hundred and forty-two women suffering from what had been diagnosed as functional uterine bleeding have been observed during the last several years. An attempt has been made to determine the etiological factors causing their bleeding and to form impressions as to therapeutic indications and values in the management of their problems. The etiologic factors were divided into causes outside of and within the physiological mechanisms producing normal uterine flow (menstruation). It was found that mechanical and endocrine disturbances (not including those of the pituitary-ovarian relationship) were the most common extrinsic factors in making that type of uterine hemorrhage which arises from disturbances of ovarian function outside the physiological mechanism causing menstruation. So-called true functional uterine bleeding arises from intrinsic disturbances of the pituitary-ovarian relationship. These occur most often at the extremes of sexual life and are due to either pituitary or ovarian dysfunction. In reality it is probable that they are fairly rare and that close scrutiny will place more and more patients in the group whose bleeding is of extrinsic orgin. A clinical diagnosis of functional uterine bleeding should not be made, except in rare instances, without an explanation of its etiology. Functional uterine bleeding as such is not a clinical entity; it is rather a symptom of one of a number of varied organic or endocrinopathic states.

DISCUSSION

Hubert L. Allen, M. D. (Alton): I feel that Dr. Huffman's paper is a very timely one because it serves to clarify a problem which has been outstanding in recent years.

Functional uterine bleeding, as he has stated, is not truly a diagnosis. On the other hand, his separation of factors causing so-called functional bleeding into extrinsic and intrinsic at least gives us a clue to determination of whether or not we can ever regard functional bleeding as a diagnosis.

The extrinsic factors he has ruled out of the picture. The intrinsic factors I think we may regard as being the only definite diagnosis or group of patients who could be diagnosed as functional bleeders.

In Dr. Huffman's list of extrinsic factors, No. 5 is endocrine. He speaks of hypothyroid individuals. It may be that some of these patients would fall into the category of true functional bleeders because, as he also pointed out later in his paper, the occasional patient with a normal basal metabolic rate determination and normal blood cholesterol will respond very favorably to minimal doses of thyroid substance given rather empirically.

As to the treatment of these conditions, — and I am referring now entirely to the intrinsic factors, — thyroid has been mentioned. It is our sheet anchor.

The gonadatropic hormones which offered such startling promise when they first were brought out, — referring to the chorionic gonadatrope now, — did seem able to produce ovulation in the normal ovary and then failed almost totally when subjected to the real test in abnormal conditions.

Estrogenic therapy is probably irrational on the grounds mentioned by Dr. Huffman; namely: That these cases of true functional uterine bleeding have already a high circulating level of natural estrogen. It is true that estrogenic substances given in large doses will inhibit any type of bleeding due to the pituitary — inhibiting effects of all sex sterols. Cessation of the treatment is almost invariably followed by a worse situation than the original disease.

I would like to disagree with Dr. Huffman to a certain extent with regard to progesterone therapy. Many investigators have reported very favorably on the use of this substance. If many of the functional uterine bleeders have an anovular cycle, the net effect is to produce a proliferative endometrium which shows none of the secretory changes associated with corpus luteum activity. We do know that progesterone will produce a direct effect upon the mucosa. We also know that withdrawl of the medication will result in a more or less normal flow.

It is true that the therapy will have to be continued over many and many a cycle and it is equally true that bad results will recur, bleeding will recur when the treatment is stopped in some but not all cases.

I agree with Dr. Huffman that the androgens offer the best results that are being obtained from endocrine therapy. I mean it is even possible, when using the androgens, to see normal cycles continue after withdrawl of the medication. The same criticism, however, that applies to the other sterols is true of the androgens, — that discontinuance of the drug will frequently lead to relapse.

I'd like to say a word about stilbestrol. Since this potent preparation came on the market, it is being used in any and all functional gynecologic complaints. It is true that given in large doses, — and it is being given in very large doses, — normal or abnormal bleeding will stop. Almost invariably the situation which results after its discontinuance is far worse than the original disease.

Parenthetically, one might wonder what is happening to some of the young women who are receiving stilbestrol in large doses. There can't help but be a paralysis of the follicular apparatus in many of these individuals and it is certainly to be hoped that the amenorrheas and menorrhagias and sterility problems that are being induced will prove to be temporary phenomena.

With regard to the so-called radical measures of treatment of functional uterine bleeding, I think these boil down to three in number: Curettage, intrauterine radium implantation and hysterectomy.

Curettage offers only palliative results and is usually done for diagnosis and not for therapy. However, it is possible to see the occasional case who will re-establish a more or less normal cycle following curettage. Careful examination of the scrapings at that time may reveal a normal proliferative endometrium.

Intrauterine radium, as Dr. Huffman has mentioned, finds its best use in the pre-menopausal individual in whom ovarian function is no longer as vital as in the younger person. Nevertheless, there are many investigators who have recommended the use of sub-menopausal doses to younger individuals and have reported not only the re-establishment of a normal cycle but subsequent child-bearing.

Most of these men mention the fact that the incidence of obstetrical complications, however, in these cases is much higher than normal.

The use of radium is certainly not without its pitfalls and some of these should be mentioned: Pyometra, cervical stenosis, cystitis, proctitis, enteritis, fistula formation and the like can all follow the injudicious use of radium.

Hysterectomy has traditionally been reserved to the patient at or near the menopause, but there may be some reason to think that hysterectomy may be more conservative, in some instances at least, than the use of radium in the younger individual.

If we admit that functional uterine bleeding is a disease entity, then the problem is two-fold: One of accurate diagnosis — and in this I think Dr. Huffman's paper is most helpful, helping us to rule out the lesions which formerly were tossed into the wastebasket, — diagnosis of functional bleeding and assigning them to their proper cause; and secondly, the problem of the treatment of the younger individual.

The androgens are certainly worth a trial but first and foremost I think many of you will agree is thyroid extract.

Finally, the problem of functional bleeders, the headaches they give the private practitioner are notorious. I think many of you will agree that very rarely does a woman of this type come into your office that she does not give a history of having received one or more series of injections or "shots" as they refer to them, at the hands of other doctors. You have no way of telling what and how much hormone was given and the patient, who has developed a conditioned reflex against the use of parenteral medication, and thinks they are all alike anyway, is not in any mood to go forward with a program of rational organotherapy.

I'd like to say that I think Dr. Huffman is to be congratulated upon the solvency of his patients. He called attention to the fact that he had three patients who had been treated for a period of five years, intermittently and successfully, with androgens. It is a very expensive drug and I am not fortunate enough to have many in that income bracket in my practice.

E. Harold Ennis, M. D. (Springfield): I would like to ask the Doctor if he is giving the testosterone by mouth.

John W. Huffman, M. D. (Chicago): I have excluded from these cases, Dr. Gill, patients whose bleeding was due to tumorous growths, including endemetriosis. Bleeding due to endometriosis and also bleeding coming from feminizing tumors of the ovary might be included with the extrinsic causes of functional flow because ovarian physiology is disturbed by these neoplasms. I felt however that bleeding from any neoplasm of the genitalia should be excluded from a discussion of functional bleeding.

Methyl testosterone has not, to me, been fully satisfactory. I attempted its use in some instances in which androgenic therapy was indicated and could not satisfactorily control the dosage.

Perhaps the cost of androgenic therapy is the reason why only three of my original patients are still taking it. They are young business women who feel that the cost of the medication is counterbalanced by their opportunity to continue at work and the avoidance of surgery. The patient who has had the largest dosage feels that her expenditure has been well justified because she hopes to marry soon and attempt to rear a family. I do not know how much reproductive ability she has. In laboratory animals we can inhibit reproduction by the administration of testosterone; when the androgen is withdrawn later the animals regain their full reproductive powers.

The use of androgens will stop the flow in almost every woman who has true functional uterine bleeding; androgens produce this effect through inhibition of the mechanism which caused the bleeding, thus giving the ovarian cycle an opportunity to reestablish a normal rhythm.

Next to androgens thyroid is our most effective therapeutic agent.

Dr. Allen felt that I had been shall we say a trifle unfair? to progesterone. I want to emphasize that progesterone does not affect the disturbance which causes the bleeding. As soon as it's effect upon the

endometrium ceases and the endometrium has gone through a quiescent stage, the bleeding will recur. That has been my experience in an appreciable number of cases, I think the majority of investigators give as 30% to 60% the number of patients who are helped by progestational therapy.

I wish to emphasize the misuse of stilbestrol, as Dr. Allen brought out. Stilbestrol should not be used for the control of functional flow. It is a chemical which produces estrogenic changes; in large doses it may inhibit the pituitary temporarily but it also causes massive hyperplasia of the endometrium. In the last ten days I have seen five women, the oldest 75 years of age who suffered from post-menopausal bleeding induced by stilbestrol. They all had to be curetted. This is not a criticism of the proper use of stilbestrol, but it does indicate its estrogen-like potency.

Sub-castrating doses of radium in young women may help some patients. I have, however, seen three women in the last few months under thirty years of age who had ovarian dysfunction as a result of the intrauterine application of radium for the control of functional bleeding. The doses ranged between three hundred and four hundred milligram hours.

In summing up it occurs to me that perhaps we should not call it functional uterine bleeding at all. Many years ago Dr. Graves of Boston coined the term "dysfunctional uterine bleeding" for the problem which we have been discussing. I have hesitated to use the term "dysfunctional" because it is not in common parlance, although it might well be.

SUSCEPTIBILITY OF THE ADULT POPULATION TO DIPHTHERIA

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The problem of adult susceptibility to diphtheria has recently been giving public health workers[1-2] and administrators[3-4] great concern. The Schick test performed on high school, college, university students, and on adult populations taken at random, disclosed that the percentage of negative reactors to this test, particularly in the rural areas, ranged between 30 and 56 percent.[5-11] This means that over 50% of the adult population is evidently susceptible to diphtheria. Though these figures are contrary to the accepted notion found in Preventive Medicine text books,[12-13] that from 85 to 90 percent of adults from 17 years upward react negatively to the Schick test, it has, nevertheless, recently been noted that the rate of attack from diphtheria in the adult population is on the increase[1-2].

An attempt will be made in this paper to present additional facts regarding the susceptibility of adults to diphtheria, gathered from personal observations and experience in the field of diphtheriology, and corroborated by recent publications found in the literature. The study of the susceptibility of adults to diphtheria, as demonstrated by the Schick test in adults, will first be discussed and will then be followed by a statistical analysis of records showing the morbidity and mortality from diphtheria among adults during the last five years in Illinois.

The Schick test is too well known to need any description or discussion. In 1913, a year after Schick discovered his test, Michiels and Schick[14], and later Park and Zingher[15], applied this test as a measuring rod of immunity to diphtheria on a community wide scale, thus arriving at a classification of the population into "immunes" and "non-immunes." The extensive study of Park and Zingher and the work done by Gröer, Kassowitz and Schick,[16] resulted in the table found in the Brenneman system of Pediatrics[17], demonstrating a gradual development of natural immunity to diphtheria by age groups.

TABLE 1

Age	Percent Positive	Percent Negative
1 — 3	91	9
4 — 6	83	17
6 — 7	61	39
8 — 9	50	50
9 — 10	44	56
10 — 11	32	68
11 — 12	29	71
12 — 13	28	72
13 — 14	24	76
14 — 15	23	77
15 — 17	20	80
17 & up	18	82
	14	86

Shows Decline of Susceptibility and Increase of Natural Immunity by Age Groups.
Taken from the Brenneman System of Pediatrics.

Table 1 is presented for the benefit of those who are not familiar with the figures or to refresh the minds of those who are acquainted

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TABLE 2

Percentage of Schick Tests Among Adults as Published by Various Authors

Name of Author	Age Groups	No. Tested	% Pros.	% Neg.	Remarks
Pulley & Fleisher (6)	22-27 (University Students)	816	33.8	66.2	Urban
			44.6	55.4	Semi-urban
			46.7	53.3	Rural
Thomas & Glazerbrook (7)	University Students	243	70.0	30.0	Well-to-do
	Militia Youths	103	36.0	64.0	Poor
Pasricha & Banerjie, etc. (8)	Adults	241	37.6	62.2	Hindoo natives
	Adults	137	49.6	50.4	Anglo-Hindoos
Cooke, J. V. (9)	Adults	1054	63.0	37.0	Nurses
Campbell, P. S. (4)	Adults	405	59.0	41.0	Univer. Stud.
	Adults	243	80.0	20.0	Normal S. S.
	Adults	250	80.0	20.0	Civil Servants
	Adults	250	55.0	45.0	R. A. F.
	Adults	558	67.0	13.0	At random
Thelander, H. E. (1) (1934)	Adults		65.5	34.5	Med. Students Dental Students Pharmacy Students
Thelander, H. E. (2) (1940)	Adults	588	53.9	44.1	Nurses
Cameron (5)	Adults	139	48.0	52.0	

TABLE 3

Percentage of Schick Tests Among Adults Observed in Illinois District Health Unit No. 6.

Readings	Age	No Tested and Read	% Pos.	% Neg.	Remarks
1. High School	14-20	2402	60.8	39.2	
2. Parents & Teachers	20-70	396	82.0	18.0	Picked at random
3. Inmates of Illinois State Institution M.	23-65	5735	40.6	59.4	
4. Employees of Illinois State Institution M.	20-65	854	56.7	43.3	
5. Village W.	19-54	136	63.0	37.0	400 Population
Village C. P.	20-58	119	57.0	43.0	260 Population (During outbreak from Diphtheria.)

with it. This table which was primarily intended to give a description of natural immunity taking place in the urban areas, apparently served as a basis for the general notion that adults are immune to diphtheria. All medical text books carry similar information. However, Schick states definitely that these figures were applicable to urban areas, but medical, as well as lay people, seem to pay little heed to this statement. Since the publication of the above table, many public health workers have performed the same tests on adults, particularly in the rural areas, but could not corroborate the above quoted immunity percentage in adults.[1-10]

Table 2 gives a synopsis of the results of Schick tests on adults, published by various authors.

Table 3 presents the results of personal observations of the Schick test performed on various groups of adult population in Illinois.

A comparative study of the three tables presented above, demonstrates that while Table 1 gives only 14% positive, for the ages of 17 and up, and 86% negative, Table 2 shows that the Schick tests varied in adults from 35% to 87% positive and from 15% to 66% negative. In Table 3 the percentage varied from 48% to 82% positive and from 18% to 52% negative. These

later figures, taken as a sample from the population at large in rural, semi-rural and urban areas, indicate that a large percentage of the adult population is not immune to diphtheria as the Schick test demonstrates.

In the tests conducted by the author, the Schick material was manufactured by the laboratory of the Illinois State Department of Public Health, and was furnished diluted and ready to be used. One tenth of a cubic centimeter, as measured by special Schick syringes, was injected intradermally in the flexor surface of the skin of the left forearm. No control was used, since the reading was done only after the fifth day following the injection. Thus, readings of false positive reactions were avoided and at the same time all delayed reactions were caught as suggested by Cameron[5], Pierre[18], and Beckwith[19].

In order to obtain uniformity in the performing and reading of the tests, the author did all the Schick testing and the readings, with the exception of those at the State Institution, where he was assisted by a physician who followed the same method and technique. *All readings, however, were done by the author.*

While conducting various Schick tests on rural school children, parents, teachers and members of women's clubs, all adults in the community were invited and encouraged to take the test. *In this group there were 396 adults varying* in ages between 20 and 62, average age being 36. Only sixty-three, or about 18%, gave negative reaction, while the majority, 324 or 82%, reacted positively.

A Schick test was performed on inmates and employees of State Institution M, prior to immunization against diphtheria.* There were 5963 inmates and 963 employees Schick tested but only 5735 inmates and 854 employees were read. The inmate population ranged in ages from 22 to 85, and the employees population from 20 to 60. The percentage of positive reactors among the employees was 56.7%, while that of the inmates was 40%. This difference might be explained by the fact that the majority of the inmates came from the urban area of Chicago, while the employees came from down state.

*The author wishes to express his indebtedness and gratitude to the Managing Officer of State Hospital and to the physicians who assisted in carrying out this program.

Time will not permit a lengthy discussion on the value of the Schick test as an expression of immunity or the lack of immunity. The validity of the Schick test was questioned by a number of investigators, such as Flood[20] in this country, Martin, O'Brien, Copeman and their associates[21] in England, and Poeh and Leasch in Europe[22]. On the other hand, Masseloff and Karsh[23] in this country conducted a special study with the object of comparing the results of the Schick test with titration of a quantity of antitoxin found in the blood, just before the Schick test was performed, in order to verify the postive and negative findings. Their work proved that titration of the blood of 50 individuals who presented negative reaction, 48 or 94% had at least 1/30 units of antitoxin in one cubic centimeter of blood. In not even one instance did they find one person with negative reaction and with no antitoxin in his blood. They concluded: "Experience has proven beyond any doubt that the Schick test when correctly performed is a practical and reliable indicator of the presence of diphtheria antitoxin in the blood in an amount sufficient to protect individuals against clinical diphtheria."

Cameron[5] tested a group of 139 individuals who were selected at random and whose ages varied between 18 to 61. Before performing the Schick test a sample of blood was obtained from each person and was titrated for the quantity of antitoxin it contained. Sixty-eight persons possessed less than 1/500 of a unit per cubic centimeter of blood. Fifty-eight showed more than 1/100 of a unit per cubic centimeter, and the remaining had between 1/500 and 1/100 units per cc. of blood. This entire group was Schick tested and 66 out of the 68 who possessed less than 1/500 of a unit per cubic centimeter were frankly Schick positive, one was doubtful negative and one was doubtful positive. In contrast, none of those whose blood contained 1/500 or more of antitoxin per cc. of blood were positive. Cameron showed experimentally that with the Schick test he was able to detect nearly every case with 1/500 of a unit of antitoxin or more and those with a lesser amount of antitoxin than this minimum. He suggested postponing the reading of the reaction until the fifth day when all the delayed

TABLE 4

Comparative Morbidity

Year	Age Groups 0 — 14				Age Groups — 15 and up			
	Chicago		Down State		Chicago		Down State	
	No. Cases	Rates Per 100,000 Popula.	No. Cases	Rates Per 100,000 Popula.	No. Cases	Rates Per 100,000 Popula.	No. Cases	Rates Per 100,000 Popula.
1937	540	75.8	——	——	115	3.4	——	——
1938	523	73.3	615	64.7	112	4.5	384	10.9
1939	462	63.3	406	44.1	126	4.7	352	9.9
1940	292	40.9	322	34.2	73	2.8	243	6.6
1941	422	57.7	211	22.2	87	3.3	212	5.9

TABLE 5

Comparative Adult Rural and Urban Population by Sex Distribution

Year	Chicago				Down State			
	Male		Female		Male		Female	
	No. Cases	Rates Per 100,000 Popula.	No. Cases	Rates Per 100,000 Popula.	No. Cases	Rates Per 100,000 Popula.	No. Cases	Rates Per 100,000 Popula.
1937	42	1.3	73	2.4	—	—	—	—
1938	39	1.2	73	2.3	—	—	—	—
1939	57	1.8	69	2.1	—	—	—	—
1940	18	0.5	55	1.4	88	2.7	155	4.9
1941	41	1.2	46	1.4	97	3.0	155	3.6

reactions can be detected. In conclusion he states, "The Schick test serves to detect a very high percentage of adults who have a low diphtheria antitoxin titer in their blood."

The Council on Medical Research in London[24] expressed the following opinion: "The Schick test is a very reliable instrument for ascertaining who is immune to diphtheria." An appraisal of the Schick test as reflected in the literature through the reports published recently by different public health workers was made by F. H. Top[25] who concluded: "It would appear that the Schick test is a satisfactory method for determining the susceptibility to diphtheria."

After substantiating the validity of the Schick test as a tool of determining the immunity of an individual to diphtheria, a further evidence of the susceptibility of adults to diphtheria may be gleaned from the statistical records for this disease.

The morbidity records from diphtheria in Illinois during 1937-1941 were analyzed. For the purpose of this study two broad classifications, urban and rural, were chosen. Chicago was selected to represent the urban population, and "down-state" the rural.* For technical reasons the age grouping was limited to (a) children from one to fourteen years of age, and (b) adults, from fifteen and upward. Table 4 presents the yearly incidence from diphtheria per localities and age groups described above, per hundred thousand population. The comparative study of the age group — 0-14, reveals a considerably smaller rate of incidence from diphtheria among the rural population than the urban. While in the rural areas there was a considerable drop in the rate of incidence, from 64.7 in 1938 to 22.2 in 1941, about two-thirds lower, on the other hand, there was only a slight drop, about one-fourth, in the urban areas (see col. 2 & 4). The rates

*Note:- This classification forms a rough statistical expedient of the population in Illinois, as communities having 2500 population and over constitute a larger figure than that of Chicago alone; however, this classification was selected in order to overcome unsurmountable technical limitations.

of incidence from diphtheria in adults in the urban areas are very small and vary from 2.8 to 4.7, about twice as low as the incidence among the rural population where the lowest rate is 5.9, and the highest 10.9. This demonstrates that the rural adult population is more frequently affected with diphtheria than the urban. This is most probably due to the fact that a higher percentage of susceptible individuals reside in the rural areas.

The study of adult susceptibility to diphtheria as reflected through the morbidity records indicates that the disease has a predilection to adult females more than to adult males. This statement holds good for both rural and urban areas. The rates in Table 5 corroborates this statement. The rates of attack from diphtheria for down-state in 1940 and 1941, being 2.7 and 3.0 for male and 4.9 and 3.6 respectively, is about twice to three times greater than the rates for the same period of time in Chicago, where the rates were 0.5 and 1.2 for male and 1.4 for female respectively. This is noted by the high figures of the rate of attack in the rural areas.

In 1941 the incidence of diphtheria in both sexes showed a tendency toward equalization. The figures are too small to enable us to judge the significance or the permanency of this change.

Although Table 6 shows that mortality in Illinois from diphtheria has been considerably higher in children than in adults, it is nevertheless gratifying to learn that the death rate was persistently on the decline, decreasing from 8.0 in 1936 to 3.9 in 1940, a drop of almost 50% in a period of five years. On the other hand, while it is true that the death rates from diphtheria in the adult age group has been low in comparison with the death rate in children, but the rate 0.3 has been stationary since 1938.

TABLE 6

Death Rates from Diphtheria in Illinois

Year	Age Groups 0 — 14 Number Deaths	Age Groups 0 — 14 Age Specific Death Rate per 100,000*	Age Groups 15 — Up Number Deaths	Age Groups 15 — Up Age Specific Death Rate Per 100,000*
1936	138	8.0	32	0.5
1937	131	7.6	22	0.4
1938	102	5.9	17	0.3
1939	99	5.7	19	0.3
1940	68	3.9	19	0.3

*Population estimated for years 1936-39 on basis that preliminary results of 1940 census show 22% of population under 15 years.

An analysis of the percentage of deaths per age groups, as demonstrated in Table 7 indicates that there was a definite increase of seven points among adults, the figures being 14.4 in 1937 and 21.8 in 1940.

A glance at Table 8 shows that there was hardly any difference in the mortality rate of adults, male and female, though in 1940, the rates among females were higher, being 0.2 per 100,000 population of male as compared with 0.4 per 100,000 females.

The general morbidity from diphtheria among the urban groups is much less than that of the

TABLE 8

Comparative Death Rates of Adults from Diphtheria by Sexes in Illinois.

Year	Males 15 and Up No. Cases	Males 15 and Up % Per 100,000 Population	Females 15 and Up No. Cases	Females 15 and Up % Per 100,000 Population
1936	17	0.5	15	0.4
1937	11	0.3	11	0.3
1938	10	0.3	7	0.2
1939	11	0.3	8	0.2
1940	7	0.2	12	0.4

TABLE 7

Diphtheria Deaths in Illinois, 1936-1940, By Age Groups

Year	Total Deaths	Death Rate per 100,000 Population	Age 0 — 14 Number Deaths	Age 0 — 14 Percent of Total Deaths	Age 15 & Over Number Deaths	Age 15 & Over Percent of Total Deaths
1936	170	2.2	138	81.2	32	18.8
1937	153	2.0	131	85.6	22	14.4
1938	119	1.5	102	85.7	17	14.3
1939	118	1.5	99	83.9	19	16.1
1940	87	1.1	68	78.2	19	21.8

"down-state" group, (See Table 9), varying from 619 cases in 1936 to 365 in 1940 in Chicago, and from 988 cases in 1936 to 510 in 1940 in "down-state." In contrast, the number of deaths was apparently higher in the urban areas, being 91 deaths in 1936 and 40 in 1940, as against the rural figures, 71 and 45 deaths respectively. Thus the fatality ratio per hundred cases in urban areas is higher than in the rural. But though the high fatality ratio of the urban has been decreasing persistently from 14.8 to 10.0, the ratio for the rural has been on the increase from 7.2 in 1936 to 8.8 in 1940.

A brief summary of the records given in the tables above indicates that diphtheria among the adult population was most prevalent in rural areas and especially among females. A further study on this problem should be done per counties in order to determine the areas and communities affected most. It was practically impossible to do so at present because of the considerable shifting in population due to the war efforts.

The following outbreaks which took place in 1939 and in 1940 will probably shed some further light on the problem of the susceptibility of the adult population to diphtheria.

TABLE 9

Case Fatality Rate

	Chicago			Down State		
Year	Case	Death	Fatality Rate	Case	Death	Fatality Rate
1936	619	91	14.8	988	71	7.2
1937	655	86	13.1	856	60	7.0
1938	635	70	11.0	852	45	5.3
1939	588	60	10.2	672	50	7.4
1940	365	40	10.9	510	45	8.8

In the summer of 1938, a small outbreak of diphtheria occurred in the Village of W, whose population was 450. In this community there were 5 cases of diphtheria in adults and only three in children. Two cases of the latter group terminated fatally, but no death occurred among adults.

About the middle of January 1939, diphtheria appeared in an epidemic form in C. R., a community with a population of 250, where 25 persons were afflicted, with no fatalities. The age group classification of the diphtheria cases were as follows: 8 pre-school, 5 school age and 12 adults. The preponderance of cases in the adult population was noticeable.

A study of sporadic cases of diphtheria in the district during 1940-1941, revealed a proportion of three adults suffering with diphtheria to one child. A similar observation was noted in several other districts. No deaths occurred among the children, but there were two adult female fatalities.

DISCUSSION

The preponderance of diphtheria among adults under certain conditions was noted by Thelander (1-2). In his last report special attention was directed to the problem of diphtheria among adults. The rise in the numbers of cases from 20 in 1935 to 38 and 68, in 1937 and 1938 respectively was very striking. This sudden increase was of such significance in San Francisco that the local Health Officer, Dr. Geiger, deemed it necessary to call the attention of his colleagues to this fact, and urged them to be on the alert for diphtheria in adults.

P. S. Campbell[4] described a recent outbreak of diphtheria in Halifax Nova Scotia, in the fall of 1941. Although the number of cases reported in adults in this outbreak was high, the mortality rates, however, were much lower than in children. A high percentage of these cases were members of the R. A. F. and trainees in the camp.

Two recent outbreaks of diphtheria among migratory workers in a camp near Blissfield and in Saginaw County, Michigan, were described in the Journal of the American Medical Association[26].

It has been demonstrated repeatedly that the rural population constitutes a great reservoir of susceptibles to diphtheria. In District Health Unit No. 6 in Illinois, the study of susceptibility, as demonstrated by the Schick test conducted on rural populations, varied from 65 to 80%. The more widely dispersed the populations, the higher was the degree of susceptibility. Similar observation was made by Bergmann[27] Pulley[6] and his Associates. The morbidity records in Illinois corroborate this observation, inasmuch as a high degree of incidence from diphtheria is found in the down-state areas, in comparison with the prevalence of this disease among adults in Chicago.

As long as a rural population remains stationary, there would be no anticipation of alteration in the "status quo" and the situation is easy to handle. However, since the advent of the United States into the war, the problem of a migratory rural population moving daily into newly industrialized areas for defense work create a problem of major significance. A considerable percentage of the rural population is being dislodged from its usual habitat and is migrating into new surroundings, where sanitary conditions in camps or temporary abodes in the proximity of the factories is still far below par. This may gradually undermine the body resistance of the migrator and his family, and may result in an epidemic from

diphtheria similar to that which occurred in Halifax. The situation is aggrevated by the daily contact between adults of the rural and urban populations.

In view of the fact that the Schick test is a reliable means for detecting the susceptibility to diphtheria, a plea is made and a suggestion offered that the Schick test be performed on all employees upon their admission into the factories. Should they show positive reaction, they should be advised of the need of an immediate immunization. When this means of precaution is taken at an early stage, it might ward off a future epidemic of diphtheria, which might in turn cause a disruption in the production of ammunitions so greatly needed for our national defense. The good old adage, "An ounce of prevention is worth a pound of cure" holds very true here.

Medical science must go hand in hand with war production in foreseeing and preventing the slightest possibility of an epidemic among the workers and civilian groups, as it is well known that eighteen workers are required to keep one fighting man at the front.

SUMMARY

The susceptibility of adults to diphtheria, particularly in rural areas has been demonstrated: first, through the results of the Schick test performed in different localities on various population groups, as reported in the medical literature; second, by observations conducted by the author, on the results of Schick tests performed on approximately 10,000 adults; and third, by an analysis of the morbidity and mortality in Illinois, during the past five years.

The validity of the Schick test as a reliable tool in distinguishing susceptibles from immunes to diphtheria was discussed.

It was demonstrated that the susceptibility of adults to diphtheria varied from 45% to 80% in the rural areas. This corroborated the observations made by others.

Analysis of morbidity records showed the high rate of diphtheria among adults in the rural areas, as compared with that of the urban population, and the higher case fatality rate from the disease in the urban area in Illinois.

The occurrence of diphtheria epidemics more pronounced among adults was discussed.

Attention was called to the possibility of epidemics from diphtheria in Illinois, particularly in and around the newly established ammunition factories and ordnance plants. The acuteness of the problem of migrations of large numbers of diphtheria susceptibles from rural areas to crowded quarters was stressed and the contacts made daily with a large number of possible diphtheria carriers was pointed out.

The advisability of Schick testing and immunizing all susceptibles upon admission to work in all defense plants was suggested.

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When our friends are alive we hesitate to say much about them in their presence, except in after-dinner speeches. As soon as they are dead we are apt in a paroxysm of sympathy to overpraise their work.—*John Bland-Sutton.*

Clinicopathologic Conferences

J. J. Moore, M.D., Department Editor.

AN UNUSUAL CASE OF PRIMARY CARCINOMA OF THE LUNG

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The incidence of primary carcinoma of the lung has been increasingly frequent in the last decade. According to Rosalm in sturing 4156 autopsied at the Yale University, School of Medicine, the ratio of pulmonary carcinoma to all other carcinomas increased from 7.4% during the period from 1917 to 1927 to 11% in the following decade.

Koletsky examined 100 cases of primary carcinoma of the lung during the period from 1927 to 1937, which constitutes 9.4% of 1064 cases of malignant tumors, carcinoma of the lung being second only to primary carcinoma of the stomach. It was suggested that the possible reasons for the increase of primary pulmonary carcinoma were the improved methods of diagnosis of clinicians and pathologists, as well as the increased attention given to this disease; and finally, we have also to consider the increase in the span of human life. Arkin and Wagner state that 20 years ago only 5% of all primary pulmonary carcinomas were diagnosed clinically, while today 50% are recognized during life. There is, however, little doubt that the increase of primary pulmonary carcinoma is real as observed in different hospitals, where autopsies have been performed under the same direction for a long period of time.

The possible etiological factors such as tuberculosis, metaplasia of the bronchial columnar epithelium after influenza, inhalation of irritating gases, radioactive substances or smoke, which are considered as the cause of primary carcinoma of the lung, could not explain the remarkably increased frequency of that tumor, because the majority of these cases give no definite etiologic reasons.

According to Fried, the cells of the primary pulmonary carcinoma originate from a common parent cell; this cell is always found in the basal layers of the bronchial epithelium. These cells are the only epithelial cells in the mucosa of the bronchial tree which are concerned with cell division and cell differentiation. Halpert and Pearson distinguish three types of primary carcinoma of the lung: (a) the squamous cell carcinoma (b) the columnar cell carcinoma and (c) the reserve cell carcinoma, so called when the tumor cells were of the same size. The nuclei of the cells of the third group were round, oval or elongated, the cytoplasm was scanty and the cells showed no particular arrangement. These cells can be transformed into squamous cells or columnar cells, or all three types may be present. Among 92 cases of cancer of the lung, Halpert and Pearson found 49 (53.26%) squamous cell carcinomas, 17 (18.47%) columnar cell carcinomas and 26 (28.25%) reserve cell carcinomas. The squamous cell carcinoma is generally considered as less malignant than the other forms and offers the best prognosis for early surgical removal. It is

more or less restricted to local extension with involvement of the bronchial lymph-nodes, while the other two types usually produce wide-spread metastases.

According to Roger 44% of the patients suffering from pulmonary carcinoma, gave as their first symptom, one that was not connected with the chest. In fact the primary tumor in many instances was not discovered before autopsy was performed. Very often the initial symptoms were the result of wide-spread metastases, exhibiting clinical manifestations which obscured the presence of a very small primary tumor.

Though much has been written about the clinical, roetgenological and pathological manifestations of primary pulmonary carcinoma, the following case deserves consideration because it was remarkable from the diagnostic, as well as from the pathological standpoint.

The patient was a white male, age 43 years. The family history was not remarkable, no cases of carcinoma were recorded. His previous history was uneventful. He was first seen by his doctor on June 7th, 1941, complaining of dyspnea without exertion. He admittedly felt perfectly well until the last days of May, 1941. From then on he had increasing dyspnea without cough, frequent attacks of slight pains in both sides of his chest and he was troubled with progressive fatigue; otherwise he had no complaints. He was working in a refrigerator factory and attributed his troubles to his work. The only positive findings were — diminished breath sounds, and diffuse coarse rales over both lung fields. The systolic blood pressure was 135 mm HG, and the diastolic 90 mm. The pulse was 116; the respiration 32 and the temperature normal. At this time a diagnosis of left heart failure was made and he was given routine treatment, without improvement. The patient was next seen on June 12, 1941, at which time he stated that his symptoms had been aggravated. The electrocardiogram revealed severe myocardial damage with no conduction deformity; the apical leads were abnormal. He could not walk without extreme dyspnea and the pains in his chest were almost continuous and most severe. He coughed slightly and expectorated a moderate amount of sputum, which was not bloody or purulent.

The patient was admitted to the hospital the following day, June 13, 1941. The physical findings were unchanged; his temperature remained normal, his pulse was 130, and his respiration had stepped up to 36. Examination of the blood, urine and stool revealed nothing unusual; the sedimentation rate was moderately increased. Examination of the sputum for tubercle bacilli was repeatedly negative. Examination of the blood revealed increase of the polymorphonuclear leukocytes to 16,000 cells; however the differential cell count was normal, as well as the red blood corpuscle count.

In a flat plate of his chest the diaphragm on the right side was drawn up to a remarkable degree. Both lungs showed a diffuse mottling, exhibiting a picture of multiple, circumscript, in some areas, confluent miliary nodules, which were esepcially dense in the base of the right upper lobe. There was no evidence of a circumscript, homogenous density. The costo-phrenic angles were movable and contained no exudate. The outline of the heart appeared to be normal. The roetgenologist interpreted the films as miliary tuberculosis of both lungs.

The patient deteriorated rapidly; the respiration increased to 40; attacks of severe dyspnea occured more frequently than before. He felt extremely nauseated, vomited at short intervals and complained of frequent severe headaches. Under symptomatic treatment he failed to improve and died on June 17, 1941, five days after admission to the hospital.

On autopsy we found a well developed, rather well nourished white male. The skin was of yellowish-gray, pale color. The thorax was barrel-shaped, the mid-line fat measured up to 10 mm in thickness. The external genitalia were normal. No edema could be found. The peritoneal serosa was smooth, moist and glistening and the peritoneal cavity was free. The percardial sac contained about 15 ccm of yellowish, clear fluid. The epicardium was soft and shiny. The myocardium was firm and purple-brown.

The valves and coronary arteries were normal. The endocardium was soft and shiny. The aorta showed a moderate amount of fatty degeneration of its intima.

The pleural cavity revealed moderate bilateral exudation of a turbid, yellowish-red fluid. Both pleurae were studded with numerous, tiny, flat,

grayish-white nodules, which were of the size of a lentil. On the cut-surface both lungs were grayish-red and rather dry. They showed a uniform mottling of all lobes. It took the form of multiple, circumscript miliary, grayish-white, rather firm nodes, scattered throughout the lung parenchyma. The nodules were of the size of

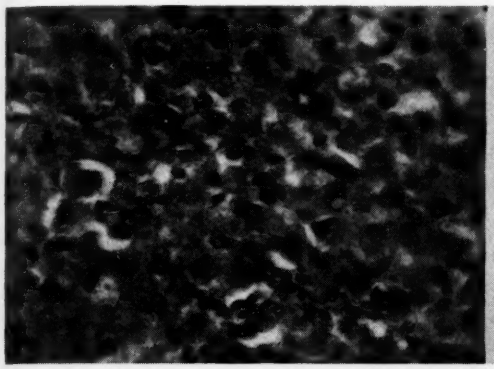


Figure 1. — Sections from one of the miliary carcinomatous nodules.

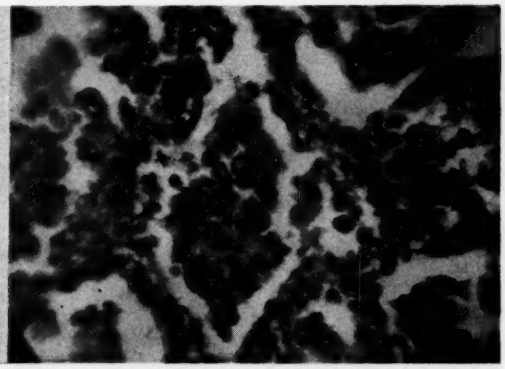


Figure 2. — Another miliary carcinomatous nodule; some of the carcinoma cells contain mucous.

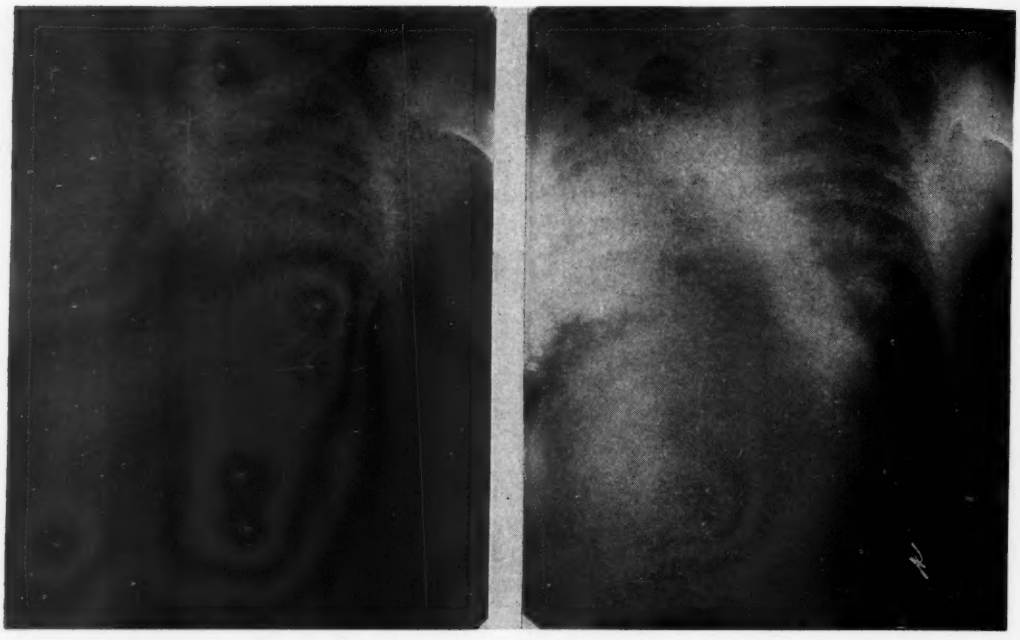
from a pin-head to that of a lentil, tending here and there to coalesce to larger irregular shaped nodes, similar to the picture of miliary tuberculosis. It was impossible to demonstrate any relationship of the tumor to the bronchial tree. The bronchial mucosa was slightly swollen and hyperemic. The hilar lymph nodes were slightly enlarged and of rather firm consistency. On the cut-surface the glands were converted into a grayish-white, firm, homogenous tissue.

The liver was rather firm and smaller than normal. Its capsule was smooth and glistening, the edges were sharp. On section the surface was brown and the acini appeared decreased in size. The gallbladder, bile ducts and the pancreas showed no pathology. The spleen was soft and on transverse-section it revealed large and very distinct lymph-follicles. The kidneys were of normal size and moderately firm. The capsule stripped with ease from the smooth, grayish-red surface.

On the cut-surface the markings and the demarkation between the cortex and the pyramids were distinct. The mucous membrane of the renal pelvis and of the ureter were normal. The urinary bladder contained about 100 ccm of a yellow, clear, urine. The mucous membrane was reddish-gray and slightly congested, especially in the region of the trigonum. The prostate was normal. The esophagus, as well as the stomach, showed no pathology. The contents of the intestines revealed the presence of bile pigments. Their mucosa showed nothing remarkable.

The histological examination of the lungs revealed a diffuse invasion of the pulmonary tissue by flat polyhedral cells interspersed with some areas of cylindrical cells. The wall of the alveoli was generally preserved, in some areas, however, it was infiltrated by carcinomatous cells. The individual cells were concentrically arranged and showed a remarkable pleomorphism. They were polygonal and had a generous amount of a clear, rather pale staining cytoplasm. The nuclei, likewise, were large and round, stained heavily with hematoxylin and contained a distinctly visible nucleous. There were no signs of keratinization. In some areas the cells were cylindrical, had an abundant cytoplasm and small pycnotic nuclei, situated at the base of the cells, but gland formation could not be found. A considerable number of the tumor cells throughout all sections of both lungs was vacuolated, the cytoplasm was stretched by a central droplet of mucinous secretion, so that the nucleus was flattened to one side and only a thin film of protoplasm remained.

The vacuole was distinctly stainable with mucicarmine. The mucus secretion was limited to the single cells and mucus remained intracellular. The tumor cells were collected into



Figures 3 and 4. — X-ray pictures of the chest showing miliary distribution of the pulmonary carcinoma.

groups surrounded by a fibrous stroma, which did not penetrate between the cells of the group. The cells themselves were held together by intracellular bridges. Irregular mitotic figures were present in moderate amount. The extension through the lungs occurred by way of the lymphatics, the septa and the blood vessels. Many lymph vessels and lymph capillaries were obstructed by tumor cells, but some of the blood vessels showed carcinomatous infiltration of their lumen, also. The distribution of the carcinoma by means of the lymphatics explained the remarkable nodular involvement of the pulmonary parenchyma. Sections of the hilar lymph nodes revealed almost complete destruction of the lymphatic tissue and infiltration with the above described carcinomatous tissue.

Comment and Discussion: It is generally known that the primary carcinoma of the lung produces no signs or symptoms in about 15% of all cases. Therefore it is not surprising that this patient felt well until about two weeks before his death. This case, however, is of interest because of the peculiar miliary distribution of the tumor throughout both lungs, simulating miliary tuberculosis as beautifully shown in the flat plate of the chest. At autopsy the lungs did not permit the possibility of ruling out miliary tuberculosis by gross examination, as the distribution and appearance of the small nodules was absolutely uncharacteristic for pulmonary carcinoma.

The nodular involvement of the lungs in cases of primary carcinoma is comparatively rare. The miliary carcinoma or carcinosis is probably the result of local metastases. In this form one or both lungs is the seat of many poorly defined tumor foci from miliary to marble size. Compared to miliary tuberculosis the carcinomatous nodules are larger, whiter, more translucent and situated along the lymph channels. Although the tiny carcinomatous nodules of the above described case were scattered more or less homogenously throughout both lungs, there was an increased density of the arrangement of the nodules in the base of the right upper lobe. It is possible that the primary tumor started in this area, though the majority of these cases show that it is secondary to an undisclosed primary focus.

The morphological similarity to miliary tuberculosis of the above described case which deceived the roetgenologist was very remarkable. His oversight was easily explained after the gross

examination of the lungs. According to Simons this form of carcinoma can be differentiated from miliary tuberculosis which shows distinct small nodules rather than a network of continuous shadows and a multiformity of lesions with varying types of shadows. A differentiation, however, cannot be made between the lymphatic invasion of carcinoma of the lung and that arising from other organs such as breast, stomach, a.s.o.

The histological examination left no doubt as to the character of the tumor. The peculiar distribution of the growth is due to its spread through the perivascular or peribronchial lymphatics which were filled with tumor cells. The pleomorphism of the cells is not unusual as the different sections of a single tumor often contain cells and cellular arrangement of the most varied types. The mucous secretion may be limited to single cells or it may fill or distend the alveoli and lead to gelatinous changes. The bronchial mucosa contains a large number of cells which have the ability to produce mucus. In pulmonary carcinoma the presence of mucus is usually associated with the presence of more differentiated cubical or columnar cells, arranged around gland-like spaces, which point to the origin of the tumor cells from the mucus producing epithelial cells. This case showed no gland formation; the carcinoma was composed of undifferentiated, polyhedral cells mingled with cylindrical epithelium and large cells containing mucin as proven by special stain. It is well known that the carcinoma cells may preserve functions of the mother tissue. Ordinarily, if deriving from glands, they preserve the tendency for glandular structure primarily and the potency of secretion secondarily only. It is rare that a carcinoma as in this case, preserves the potency of cellular secretion, while completely losing the tendency for glandular structure. The peculiar gross appearance of the individual carcinomatous nodules has to be attributed to the production of a rather large quantity of mucus. The miliary type of primary pulmonary carcinoma was described before (Ewing, Boyd), however, the presence of mucin in the undifferentiated type of carcinoma of the lung is very remarkable, as no other similar cases were to be found in the literature.

Due to the short stay of the patient in the hospital and because of his critical condition, it was impossible to examine him as thoroughly as it would have been desirable. A bronchoscopy and a biopsy would no doubt have been helpful if the patient's condition had permitted their being done. However, even though the examination of the patient was not complete, this case was interesting from a clinical standpoint because it again proved the difficulty of the correct diagnosis of primary carcinoma of the lung; while the morphology and histology of this tumor, exhibiting an uncommon gross distribution and rare microscopical appearance, was of particular interest to the pathologist.

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The role of the general practitioner in the eradication of tuberculosis cannot be overemphasized. Mass programs of case finding in high schools, colleges, industry and racial groups are public health functions. But there are other categories that such drag-nets do not reach. One of these is the older third of the population. They constitute no single group to be rounded up for mass examination. Yet, they contain a higher percentage of infectious cases than any other age. The family doctor alone has direct access to this reservoir or community infection. To drain it effectively and speedily his aid is indispensable. Editorial, Tuberculosis Abstracts, Nov., 1942.

News of the State

PERSONALS · COMING EVENTS · MARRIAGES · DEATHS

J. P. Greenhill delivered the J. F. Y. Paine Address before the Texas Association of Obstetricians and Gynecologists on September 28th. His subject was "The Use of Synthetic Estrogens in Obstetrics and Gynecology."

Andrew C. Ivy, Nathan Smith Davis Professor of Physiology and Pharmacology of Northwestern University, has been appointed civilian director of the Naval Medical Research Institute at the naval medical center at Bethesda, Maryland. He will be in charge of all medical research for the navy.

Herbert L. Pettitt, Morrison, resigned on October 26th as Assistant Director of the State Department of Public Health, to return to private practice due to a war-time shortage of physicians in his home city.

At the October 14th meeting of the Mc Donough County Medical Society, Dr. C. P. McRaven was elected President and Dr. Archie Trummel of Bushnell was elected Vice-President. Dr. O. O. Christenson, Pathologist of the Methodist Hospital of Peoria, presented the program.

Ogle County Medical Society met in the new Warmolts' Clinic, Oregon, October 22nd. Major E. H. Quandt, Station Hospital, Camp Grant gave a very interesting and informative talk on Army Hospitals and his experience since early 1941. Election of officers was held. Dr. M. S. DuMont, Mt. Morris was elected President, Dr. W. E. Kittler of Rochelle, Vice President; A. R. Bogue of Rochelle, Secretary and Treasurer, and Dr. C. H. Schaller of Rochelle Censor for three years.

COMING MEETINGS

November 10 — Adams County Medical Society — Quincy — Evening — Raymond W. McNealy, M.D. — "Gall Bladder Disease"

November 10 — Effingham County Medical Society — Effingham — 6:30, Benwood Hotel — R. A. Tearnan, "Diagnosis and Treatment of Peptic Ulcer; Louis Loeffler, "Pathology of Peptic Ulcer"; John Madden, "Roentgen Ray Aspect of Peptic Ulcer"

November 13 — Will-Grundy County Medical Society — Joliet — Louis Joliet Hotel — 12:00 o'clock noon

November 17 — Macon County Medical Society — 6:30 P. M. — Decatur — Edward D. Allen — "Gynecology"

November 19 — Marion County Medical Society — St. Mary's Hospital — Centralia — 8:30 P. M. — Arrie Bamberger — "Treatment of Soft Tissue Injuries"

November 19 — Crawford County Medical Society — Robinson — Woodworth Hotel — 6:30 P. M. — J. J. Sievers — "Pneumonia"

November 20 — Will-Grundy County Medical Society — Joliet — 12:00 noon — Louis Joliet Hotel — Edward A. Oliver — "Dermatology"

November 27 — Will-Grundy County Medical Society

December 2 — Schuyler County Medical Society — Afternoon and evening — Rushville — James H. Hutton and Robert S. Berghoff

December 1 — Vermilion County Medical Society — Danville — Dinner 6:30 — Paul H. Holinger

December 4 — Will-Grundy County Medical Society — Paul Holinger — "Foreign Bodies in the Air and Food Passages"

December 8 — Adams County — Quincy — Evening — James H. Hutton — "The Diagnosis & Treatment of Common Endocrinopathies"

December 10 — Effingham County Medical Society — Benwood Hotel — Effingham — Evening

December 10 — Crawford County Medical Society — Woodworth Hotel — Robinson — Evening

December 11 — Greene County — Roodhouse — 6:30 P. M. — Arthur E. Walters

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MARRIAGES

Rex Decker Hammond to Miss Barbara Tyler, both of Chicago, at Little Rock, Arkansas, October 10, 1942. Dr. Hammond is a 1st Lieutenant in the army and Miss Tyler (Mrs. Hammond) is medical artist at Cook County Hospital, Chicago.

Charles W. Geiger to Mrs. Viola Karnstrom, both of Kankakee, Ill., in Bowling Green, Mo., June 29.

DEATHS

Joseph C. Beck, Chicago; University of Illinois College of Physicians and Surgeons, 1895. Former Consulting Otolaryngologist, Cook County Hospital, U. S. Veterans Hospital. At time of his death Senior Otolaryngologist, Michael Reese, Mt. Sinai and Henrotin Hospitals; Professor Emeritus, Laryngology, Rhinology and Otology at University of Illinois College of Medicine; Associate Dean in Otolarnygology, Illinois Charitable Eye and Ear Infirmary. Died October 20, 1942 at the age of 72.

James Blanchard, Creal Springs; Eclectic Medical College, Cincinnati, 1881. Died September 26, 1942 at the age of 86 years.

Dennis F. Brennan, Chicago; Northwestern University Medical School, 1886. Died of a heart ailment on October 21, 1942 at the age of 75 years.

Joseph Arkell Campbell, East Moline; St. Louis University School of Medicine, 1906. Served as a major in World War I. At one time managing officer of the East Moline State Hospital and later manager of the State Institution at Anna, Illinois. Was practicing physician at Marissa, Illinois, for many years. Died October 6, 1942 at the age of 60.

Steven J. Conway, Chicago; Loyola University School of Medicine, 1917. Superintendent of the Chicago Hospital. Died of heart disease on October 8, 1942 at the age of 49 years.

John P. Crotty, East St. Louis; St. Louis University School of Medicine, 1934. Died of a heart ailment on October 8, 1942, at the age of 33.

Carey Culbertson, Chicago; Northwestern University Medical School, 1898. Former professor of obstetrics and gynecology at Rush Medical College, and gynecologist of Cook County Hospital. Member of the Presbyterian and Norwegian Hospital staffs. Served as a major in the medical corps in World War I. Died October 9, 1942.

James Charles Egan, Chicago; Loyola University School of Medicine, 1915. Practiced medicine in Chicago for 36 years. Died October 3, 1942 at the age of 78.

Lincoln B. Griswold, Utica; Loyola University School of Medicine, 1923. Died Oct. 1, 1942 at the age of 46 years.

Winfield Scott Hall, Berwyn; Northwestern University Medical School, 1888. Was professor of physiology at Northwestern University for 24 years and author of numerous medical books. Was a member of the Society of Experimental Biology, the American Academy of Medicine, of which he served as president in 1905. Died October 2, 1942 at the age of 82.

Clarence A. Hercules, Harvey; Northwestern University Medical School, 1904. Member of staff of Oak Forest Infirmary for 20 years. Died October 24, 1942 at the age of 64.

Edward R. Herman, Chicago; National Medical University, Chicago, 1906. Died October 22, 1942 following an illness of several weeks. Age, 73 years.

John Bell Howe, Hines; Chicago Homeopathic Medical College, 1895. In office of Veteran Administration facility. Died Oct., 1942 at the age of 70.

Thomas D. Kaylor, Barry; Keokuk Medical College, 1895. Practiced medicine in Barry for more than 40 years. Died October 12, 1942 at the age of 79.

HARRY LYCAN, Vermilion; Marion-Simms College of Medicine, St. Louis, 1899. Coroner of Edgar County for ten years. Died following a heart attack on September 27, 1942 at the age of 69.

JAMES ELLIOTT MCCORNELL, Chicago; Illinois Medical College, Chicago, 1909. Former Gibson City resident. Died September 25, 1942, aged 65.

WILLIAM FREDERICK MYERS, Coal Valley; Kentucky School of Medicine, Louisville, 1892. Charter member of the Rock Island County Medical Society; had been honored for fifty years of medical practice. Member of Valley Masonic lodge more than fifty years, member of Moline consistory, and the Order of the Eastern Star. Died October 9, 1942 at the age of 74 years.

GEORGE E. PETERMAN, Chicago; Dearborn Medical College, 1904. Practicing physician in Chicago for many years. Died October 25, 1942 at the age of 71 years.

HERBERT ANTHONY POTTS, Chicago; Northwestern University Dental School, 1895, Northwestern University Medical School, 1901. Professor emeritus of oral surgery at the Northwestern University Medical and Dental Schools. He retired in 1939 after 34 years of service at the university. Senior oral surgeon at St. Luke's Hospital and former oral surgeon of Cook County Hospital. Served as a major in the medical corps in World War I. Died October 7, 1942 at 69 years of age.

JOHN FRED QUENZER, Chicago; Dunham Medical College, Chicago, 1901; Hering Medical College, Chicago, 1904; aged 79; died, July 27.

JOHN ALBERT ROBISON, Chicago; Rush Medical College, 1880. Retired from active practice several years ago. Was former president of the Illinois State Board of Health and one of the original members of the Presbyterian Hospital board. Died October 18, 1942 at the age of 85 years.

O. CHARLES SOMMERFIELD, Chicago; University of Illinois College of Physicians and Surgeons, 1909. Had practiced medicine in Chicago for 32 years. Died October 14, 1942, aged 59 years.

CARL H. THOMSEN, Dolton; Northwestern University Medical School, 1900. Died October 22, 1942.

EDWARD E. WOODSIDE, Marion; Rush Medical College, 1905. Died October 25, 1942 at the age of 66 years.

HOW SURGEON HELPED SAVE HOSPITAL

How a British surgeon helped save a hospital that had been bombed is described in *The Journal of the American Medical Association* for October 24 by the regular London correspondent of *The Journal* who reports that:

"High explosive and incendiary bombs fell on a hospital, setting it on fire. The house surgeon, Dr. Philip Baxter, wearing a dressing gown over his pajamas, climbed a fall pipe to the blazing roof. Then he used the girdle of his dressing gown as a rope to hoist up buckets of water, which were tied on by helpers below. He got the blaze under control. In leaping from the roof to a lower one he injured an ankle but went to the operating theater to attend the victims of the raid. When there a message came that an elderly woman was trapped under wreckage in another part of the town and that medical help was urgently needed. He went and had to crawl down a tunnel in the debris to administer morphine. He waited until she was extricated and sent to the hospital. He then hobbled back but was in great pain. While on his way a policeman lent his bicycle. Cycling was no less painful but was quicker. On arrival he returned to the operating theater and continued his work. Only after he had been on duty for several hours did his own injury receive attention. . . ."

It has been estimated that at 3 years of age 85 per cent of the nation's youngsters suffer from dental decay and that a few years later this may reach 97 per cent, James N. Miller, Washington, D. C., points out in a recent issue of *Hygeia, The Health Magazine.*

There can be no such thing as chronic pulmonary tuberculosis without a first infection. However, it is not usually the first infection that is important — what matters most is the subsequent superinfections and reinfections which should be guarded against in the infected group. David Zachs, M.D., Jour. of School Health, June, 1942.

Do not forget that of all the countless remedies, rest, alone, has stood the test of time. Gerald B. Webb, M.D.

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